IMPROVING RESEARCH EFFECTIVENESS IN IDRC

ROBERT S. ANDERSON

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by
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The first assessment of my plans for a new program occurred at meetings in the Centre in early August, among a lively group consisting of Pierre Beemans, Sitoo Mukerji, Nicole Préault, Charles Davis, John Jaffray, Salama Fahmy, Eva Rathgeber, Anne Bernard, Chusa Gines, and guest Geoff Oldham.

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Robert Anderson's association with IDRC began in 1971, and he has occasionally been both consultant and researcher in its projects. He was recently the chair of the Community Economic Development Centre at Simon Fraser University, Burnaby, BC, Canada, and is now professor and chair in the Department of Communication of Simon Fraser University. He teaches a course called Communication of Science and Transfer of Technology, focusing on Canadian institutions in international development, including IDRC.

He began studies of the growth of the scientific and technical communities in developing countries in 1967. He worked in 1972 and 1973 as director for the Quakers in Bangladesh, focusing on refugees and post-war reconstruction, rural organizations, and rural development. He subsequently worked on development issues in India, Jamaica, Thailand, China, eastern Caribbean, and the Philippines. Anderson is author of *Saha and Bhabha; Building Scientific Institutions in India* (1975); *Science, Technology, and the Agricultural Revolution in Asia* (1982); *The Hour of the Fox — Tropical Forests, the World Bank, and the Indigenous People of Central India* (1988); and *Rice Science and Development Politics: Research Strategies and IRRI's Technologies Confront Agricultural Diversity in Asia* (1991).

EXECUTIVE SUMMARY

This study was conducted in June, July, and August 1992 at the request of Sitoo Mukerji and Director-General Pierre Beemans of the Corporate Affairs and Initiatives Division of the International Development Research Centre (IDRC) in Ottawa. The terms of reference were "to develop an outline for a program designed to increase the effectiveness of IDRC-supported research, and to recommend appropriate tools and mechanisms that will enable the Centre to initiate the project and program development." During the course of this work, it was decided to propose a reorganization of the "Research Utilization Program" and to propose naming one of the main activities of the new Innovation Management and Policy Group "enhancing capacity for effectiveness research."

Empowerment Through Knowledge (1991) describes "Research on effective research systems: The Centre will intensify its efforts to assess 'what works' in development research. Little information exists on how research for development is best organized and how to ensure that the products of useful research can be more speedily and wisely applied. A new program will be developed to support research on such topics" (p. 23). The strategy further argues that IDRC should not only continuously revive itself as a learning institution and learn and incorporate these lessons from development research, but also act as a knowledge broker, informing and influencing others with the foresight necessary to nurture effective programs and projects.

Findings of the Study

- There is widespread realization at IDRC that only a small proportion of the Centre's 4700 projects have been effective.

- There is widespread approval of a plan to study research effectiveness in a systematic way.

- There is general willingness in IDRC's divisions and regional offices to cooperate and collaborate on studies of research effectiveness, starting with the Centre's projects and programs, but gradually reaching beyond them.

- There is common acceptance that the lessons from studies and action in research effectiveness should be built into the organizational culture of the Centre at every level.

- This study confirms that people in similar development research institutions elsewhere are looking to IDRC to demonstrate ways to proceed in the manner suggested by *Empowerment Through Knowledge*.

- This study included thorough discussion with concerned Centre staff and provides the framework for a subprogram of relevant studies and action on the question of effectiveness, in the context of a reorganized Research Utilization Program, which could now be renamed the Innovation Management Program.

What is Research Effectiveness?

Having contemplated the variety of meanings attached to "research effectiveness" within and outside the Centre, I offer a working definition: research effectiveness is the property of development research that closes the loop from the perceived and real consequences of research and development among the populations affected by it back to the people who define problems and plan their solutions through new policies and new research. It thus includes, but is not limited to, the study of the cost-effectiveness of such efforts, the study of the process, effects, and impacts of technology transfer and technique transfer, the study of the interplay between policymakers, policy-oriented researchers, and the political publics most affected by specific developments and changes, and the study of the process of utilization of research and development in the productive sectors of the economy.

To characterize the study of research effectiveness, it is useful to consider a long loop that forms the connection between separate domains like the productive sectors, policy circles, fragmented populations, and the institutions and individuals who do development research. Studying research effectiveness means studying the flow of information and influence in the paths traced by the loop (see diagram in Chapter 8) and necessarily includes an understanding of geopolitical and macroeconomic forces beyond the influence of research and development and beyond the reach of the Centre. Something valuable is already known about each of these fields; the time has come to make this knowledge coherent, to close the loop, and to provide the Centre with a testable model of how to proceed, not only to make its own programs smarter, but also to assist others in doing the same.

Views From IDRC

In this study, the views of people within IDRC were compared with those of people outside the Centre; quotations are provided to illustrate these opinions. People of widely different experience in IDRC were consulted (see Appendix B). In general, differences between head and regional offices within IDRC have emerged through a long tradition of gradually more elaborate distinctions, and subtle differences with respect to research effectiveness seem to fit that tradition. At the head office, there is more concern with the Centre-wide, system-wide usefulness of the new effectiveness program, with regional and global policies, and with appreciation of the work in Canadian constituencies. There are also some differences between divisions in the understanding of effectiveness, which reflects different traditions of work in their various fields. At regional offices, the focus is on how to stimulate research communities in the regions to work on significant problems, how to ensure that policymakers (who are constantly changing) are informed by relevant research, and how to integrate the interests of (and knowledge of) various publics and client-users into the program of research. Given the increased budgetary responsibilities of the regional offices, there is also a concern to monitor and evaluate projects and programs to make them more effective as they evolve.

More poignant, perhaps, is the realization that IDRC has spoken for years about transferring ownership of its research and development efforts to the people who are its intended beneficiaries, to make them a central part of the program. But, within IDRC, there is frank admission that transferring ownership is very hard indeed, particularly among people who may not own more than one cooking pot or water buffalo, or who may be selling their cooking pot to live. So effectiveness has also come to mean the ways and means of creating a proprietary interest, where it is possible, in research and action that leads people to solve their own problems.

Views From Other Institutions

An account is also given of interviews outside IDRC with people at the Rockefeller Foundation in New York, at SAREC in Stockholm, and at various Dutch and British institutions. Considerable attention is given to the Rockefeller Foundation's experience in building a community around the issue of female education in Africa, incorporating IDRC's experience with the African Economic Research Consortium. It is clear that all these like-minded institutions have considerable experience with the problem of effectiveness, but realize that they must now systematically learn

about research effectiveness. Moreover, most of them look to IDRC to provide leadership in the field.

The Field of Research Effectiveness

A review was made of current literature and debate in the fields most closely related to research effectiveness and innovation — socioeconomic studies of science and technology, business history, history of technology and culture, management of innovations, development history, etc. The overriding reason why IDRC should concern itself with this literature and these debates is that other fields of study relevant to IDRC's work (e.g., entomology) are well advanced, but the effectiveness field is not. No other field of enquiry will be so relevant to IDRC's future as this one. IDRC must position itself in the articulation of the critical theory and practice of research effectiveness and utilization, because this field is the one in which the next generation of research managers and program officers will be trained in addition to their other skills (like entomology). Using foresight, IDRC can help to nurture this underdeveloped field of study, particularly in developing countries and regions, and it will become one of the intellectual resources IDRC needs most in the next few years. It is also a field of learning that other Canadian institutions will need most in the next few years. Having made effective use of the already-developed fields (like entomology, which had generations of support before IDRC was born), IDRC should now champion a new field close to its interests. IDRC is advised to become a knowledge broker in the field of research for development. Effectiveness and utilization studies are the intellectual underpinnings of research for development. Being effective is the underpinning of an action-oriented Centre.

The journals examined for current debates on this subject are *Technology in Society*; *Technology & Culture*; *Human Organization*; *Impact of Science on Society*; *International Journal of Technology Management*; *Organization Studies*; *Research Policy*; *Public Administration & Development*; *Journal of Public Policy*; *Science, Technology & Development*; *Administrative Science Quarterly*; *Social Studies of Science*; *Science, Technology & Human Values*; *Science in Context*; *Scientometrics*; and *Minerva*.

Mini-Atlas of Cases of Research Effectiveness

A list of projects that demonstrate research effectiveness was derived from the Ottawa interviews; follow-up study and documentation are matched with the opinions of IDRC staff regarding these cases and the lessons they teach. From this work arose the concept of a loop that describes the paths of influence and information to and from researchers

and research institutions, which do (or don't) direct their attention and resources to the appropriate definition of development problems and their effective solution. The loop illustrates paths through which feedback from the "world" to the research institutions that IDRC supports can be studied. The objective is to influence the climate, the culture, and the organization of research for development.

The Mini-Atlas is an incomplete list from which a few projects or programs can be selected for study in the planned "research effectiveness case studies." Further details about these projects are given in Chapter 5. The programs and projects are listed alphabetically:

African Economic Research Consortium
AIDS Diagnosis (PATH/Global)
Anticonceptive Technology (India)
Alternatives to Cyanide Use in the Aquarium Industry (Philippines)
Bharatiya Agro-Industries Foundation Institutional Support (India)
Bilharzia (Egypt)
Coastal Fog Application and Camanchaca Project (Chile)
Conservation and Development of the Mt Everest Ecosystem (Nepal)
Environmental NGO Position Papers for UNCED (Third World Coalition)
Environment and Development Awards (Penang Island Bioreserve)
Food Enterprises and Household Grain Processing (India)
Geographic Information Systems
Indian Peasant Games and Preschool Curricula (Colombia)
Marketing of Information and Documentation Sciences (Morocco)
Microcomputer-Based System for Small Area Data Retrieval (Chile)
MINISIS Acquisition and Training Projects
National Poisons Information Service (Sri Lanka)
Paulownia — Dissemination of Research Results (China)
Rural University FUNDAEC (Colombia)
Small Grants Programs
Sokoine University of Agriculture (Tanzania)
Special Institutional Support for CEDES (Argentina), and CIEPLAN (Chile)
Toward the Single City, Johannesburg and Soweto (South Africa)
Toward a Sustainable Development Strategy (Mexico)

A Model for the New Program

A model for the organization of a new innovation management and policy program is proposed to allow debate over and selection of the most positive features of the proposed changes. The idea at the heart of IDRC's objectives and what holds the subprograms together is innovation.

The new subprograms address three aspects of the management of innovations over the long term. In 1991, the Research Utilization Program included six subprograms; it has reduced these during the past year to three. The new model combines and reduces the old subprograms into three that are more focused and strongly complementary;

1. Enhancing capacity for research effectiveness,

2. Utilization of research for sustainable development, and

3. Management of scientific and technical change.

To some extent, subprograms 2 and 3 have histories in the Centre, and are ready to be broadened and deepened. Their new appearance is based on advice gathered in this study and is described in detail in an accompanying document. The plan for subprogram 1 — enhancing capacity for research effectiveness — is the main outcome of this study. Further details of the plan are given in chapters 7 and 8, including plans for subprograms 2 and 3.

The effectiveness subprogram addresses three main problems: there is little systematic understanding of the effectiveness of development research as an aspect of innovation; the capacity to understand and adopt/adapt/apply the lessons of research effectiveness and innovation is undeveloped; and communication about research effectiveness and innovation management is needed, but undeveloped. Three components of the enhancing capacity for research effectiveness program are planned:

1. Studies in Research Effectiveness — starting with in-house case studies and leading to a more general approach, to build the evidence, theories, and methodologies for the field of research effectiveness studies for IDRC and other institutions interested in development research;

2. Capacity Building for Research Effectiveness — starting inside IDRC, to enhance the capacity to incorporate the lessons from component 1 at all regional offices and in Ottawa, then moving outward, among Canadian partners and IDRC-supported institutions outside Canada, enabling them to undertake similar studies, adapting the paradigms, theories, and methodologies with them to suit their needs, and continuously building the usefulness of the field of research effectiveness studies.

3. Communication for Innovation — starting with IDRC and moving outward among Canadian partners, publics, and like-minded institutions/individuals everywhere, to find and use messages and media that deepen and extend understanding of both research effectiveness and innovation, and that loop back to influence the creative, productive, and innovative sources in societies everywhere.

A Service Program?

It is essential to point out that the work of this new group cannot be thought of as a service to other divisions. This group and its program efforts must create and communicate a way of doing things that attracts and affects other divisions; that way of doing things is essentially collaboration. In IDRC, as in every other large Canadian institution and organization (corporation, ministry, agency, university, hospital, etc.), there is a tension surrounding the term "service" — a unit defined as serving others is disqualified from major decisions and the "service" definition is resisted. Work on effectiveness, which is inherently complex and multi-dimensional, cannot really be done well as a service to others (like polishing their text). Archaeologists move in to brush the dust off other people's debris and interpret it as a service, but in this case the people are working among the debris, working with it, and so the effectiveness studies need the active collaboration and interpretation of the people themselves, the people who constructed the programs being studied. Other divisions will be among the main beneficiaries of this program because they will use its results to smarten up their work. It is in their interests to see it, not as a service done for them (it cannot really be achieved as a service anyway), but as a joint program in which they can be proactive, and whose approaches they can adopt and adapt to their purposes.

Recommendations and Things to Do Immediately

1. Adopt the whole Innovation Management Program, and phase in each subprogram in a sequence, with due reference to the affinities and capabilities of existing and future members of the group and the manner in which the outputs of the various activities will converge upon and reinforce one another.

2. Establish "Enhancing Capacity for Research Effectiveness" as a subprogram of the new innovations program, and decide who its guides and protagonists will be.

3. Appoint an Advisory Committee for the research effectiveness case studies and have its members — in consultation with others in the Centre — select about six candidate case studies for first attention. Two members of this committee should be from outside the Centre; one could be a member of IDRC's Board of Governors.

4. Consider the appointment of someone trained in anthropology to the program. This person should have experience with institutional studies.

5. Choose study teams and organize them around the case study that interests and attracts them most. Let them develop a timetable and a budget. In the end, three or four studies might proceed, in tandem, until the value of their activity can be assessed. Plan to review progress in six months and a year.

6. Complete an inventory of Canadian people and institutions who have interests surrounding the effectiveness question and begin to communicate with them about the program to build public awareness of this work.

7. Open the application process for the intern position(s) in research effectiveness.

8. Begin the monthly forum on research effectiveness and establish an open forum on e-mail with people in the regional offices to build a climate of interest in the results of the effectiveness case studies and to exchange ideas about a generic framework and methodology. Conserve all these ideas in an accessible form.

9. Review the performance review criteria within the group/division to find ways to reward both individuals and groups for research and publication in the effectiveness field.

10. Explore the possibility of special in-house leave (on a Centre-wide competitive basis) for 2 weeks to complete a study of an aspect of effectiveness in an individual's work.

11. Review all leave mechanisms in terms of their utility for building a learning culture and an interest in effectiveness research in IDRC.

12. Add effectiveness monitoring to the criteria for deciding on the 25% of the Centre's budget for new initiatives. New projects/programs should have effectiveness questions built into their design. Lessons can be learned from monitoring these new projects as they evolve.

13. Plan a session on research effectiveness at the 1993 learned society meetings — even if results from the case studies are not available by then, there can be discussion of work in progress. Interns, doctoral fellows, and program officers from the regions should be present if possible. Study other ready-made, inexpensive venues, including meetings among like-minded organizations, such as the one on this topic planned by RAWOO in Amsterdam in January 1993.

14. Institute a dissertation completion grant in the field of research effectiveness. The awardee might work as an apprentice with one of the case study teams.

15. Establish a small-grants program in research effectiveness, one through each regional office, but perhaps managed by a regional research institution. Select the best results for inclusion in the annual discussions in Canada, as well as regionally.

16. Initiate discussions with editors/publishers of relevant journals to identify those who would like to have a special issue on research effectiveness edited or electronically prepared at (or in coordination with) IDRC. Establish a sequence of such journals, so there is a timetable of publication. Ensure that the special issues are available in the regions. Publish case studies in relevant regional journals.

17. Establish communication with interested journalists to see how their timetables (including leaves) fit with the effectiveness case studies and how they might best learn from them.

1. INTRODUCTION

It is important to see how reorganization of the existing Research Utilization Program (RUP) would make room for a new subprogram dealing with research effectiveness. The RUP has evolved considerably since its initiation in 1988 and has reached the point where it is ready to become a subprogram of a wider initiative. This study was conducted after a series of rapid and profound changes in the Centre, so a decision was made to match a new program on research effectiveness with a reorganization of the group, at the same time enlarging the scope of the existing utilization program.

Empowerment Through Knowledge (1991) describes "Research on effective research systems: The Centre will intensify its efforts to assess 'what works' in development research. Little information exists on how research for development is best organized or how to ensure that the products of useful research can be more speedily and widely applied. A new program will be developed to support research on such topics" (p. 23).

The RUP was established after a study of IDRC's needs and those of other international donor agencies in 1988,[1] including the agencies that were contacted in the course of this study (see Appendix B for a list).

A full report of the search for effective research at IDRC would take much longer than was available at this time, but such a history would be of great importance to the Centre and its partners. This study did uncover, however, a constantly growing interest in the last 10 years, in how the results of research could and should be used — hence the establishment of the utilization program and the creation in most IDRC offices and divisions of an awareness of the necessity to place research results in the context of policy and/or industrial or commercial operations. At the same time, the socioeconomic and political context in which innovations occur direct whether useful ideas, products, processes, and policies will actually make a difference in the development of a region, country, or people, i.e., whether research and innovations will be effective.

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[1] IDRC memorandum from Arun Abraham to James Mullin, *Survey of International Donor Agencies on the Utilization of Research Results*, 8 April 1988.

Interviews were conducted with people in the Centre at Ottawa and in the regional offices, which raised questions about the directions that the new program should take and the significance of the search for effectiveness. I also interviewed interested people in New York, Amsterdam, Sussex, Stockholm, East Anglia, and Oslo (see Appendix B). In August, a draft plan for the program was assessed at a meeting in Ottawa, involving guests from outside the Centre. The plan presented in this study is the result of that thorough and lively assessment.

Turning Research into Policy:
The View of a Former President of IDRC

"I think of one country where I had done a study many years ago, which had a lot of fine equations and statistical testings related to land resources. This was well received internationally as a good piece of research, but it sat gathering dust on all four volumes on the planning commission shelves of that country and resulted in no policy action. Then IDRC supported a young scientist from the country to do research on a similar theme. His study was not up to international standards and would not have been accepted by a peer group for publication in a major journal. But it was published in the country concerned in the local language, and directly resulted in major legislation with regard to land reform. It had a message, which was indigenous, which was understood, and which was a major contribution to the development policy of that country, in a way that my much more sophisticated study was not and, frankly, could not have been. I may say that the conclusions of the two studies were identical. He got at his much more simply than I got at mine" (David Hopper. 1979. Time is all important. *Mazingira*, 8, 63–64).

2. THE MEANING OF "RESEARCH EFFECTIVENESS," "UTILIZATION," AND "INNOVATION"

The meanings of terms in common speech limit the potential use of new terms introduced for new purposes. No prepared definitions were proffered during interviews. People were asked "What does this term mean to you?" or "What does it communicate?" What is important is the number of connotations inherent in the same terms; research effectiveness is a subject for which people prefer to construct their own meanings.

The term "research effectiveness" is commonly used as a synonym for "research utilization," the latter being a term recently established in IDRC's administrative nomenclature. Although "effectiveness" is used about six times in the IDRC strategy document *Empowerment Through Knowledge* (1991), it is not commonly used in everyday speech. In the interviews, effectiveness is an ambiguous term with various connotations like "cost-effectiveness," "organizational effectiveness," or "efficiency"; outside IDRC, one hears "social relevance," and even "social impact" as rough equivalents of effectiveness. This variation is probably a function of the diverse interpretations of IDRC's objectives — "having successful projects," "getting things done," "making a difference" — each interpretation drawn from a different level of analysis of IDRC's work.

The problem with "effectiveness" is that it lacks poetic power or sex appeal, or whatever it is that makes an idea memorable. Canadians will not soon forget that one of the Es in a triple-E Senate is "effective," but we also know that in hard constitutional negotiation the term yielded a number of different interpretations. Unfortunately, "effective research" is a term that is easy to forget, but until IDRC's poets find a new term, it will have to do; hence the need to introduce a more graphic idea like "the Loop" (see diagram in Chapter 8).

Because research utilization was often used (in the interviews) as a substitute for effectiveness, it is important to understand how utilization is interpreted. Like "research effectiveness," there is widespread agreement that "research utilization" is absolutely necessary for IDRC at this stage, both in the limited sense of immediate clients using research and in the broader sense of making a difference in tough development situations. It was in this context that there was most discussion of the value of a program that focuses on innovations, in terms of policies, techniques, technologies, and organization. The term "innovation

management" appears to be a more viable organizing principle. Thus, the new program would go beyond utilization, to see how and why (or why not) innovations are effective and to bring those lessons back to all programs in IDRC. (See Chapter 6 for discussion of some of the current issues in effectiveness and innovation.)

To understand why this broadening is necessary, we must look at the difference between the words utilization and usage; utilization connotes a linear process, an application of something finished, and a fairly simple test of its "utility"; it does not necessarily connote continuous use. These limitations were attached to the term "utilization" within IDRC, particularly in the sense that what was being utilized was assumed to be a hard technology, rather than an idea, policy, technique, or organization. Although it certainly provided focus for programming, it is time to broaden the term to include policy and social innovations. The word "usage" (same meaning in English and French) is broader than utilization and connotes evolving practices and their incorporation into development, plus their continual modification in a nonlinear way. It is important to incorporate the idea of continual modification into the subprogram on utilization.

Utilization is widely believed to be increased by "evaluation." The link between these two functions was made frequently, in many indirect and unsolicited ways. The interviews illustrated widespread appreciation of the difference between "evaluation as accounting and audit" and "evaluation for lessons learned." In the first, the emphasis is on the control of projects and programs; in the second, it is on change in the programs, change among researchers, and change in IDRC. The spirit of "value" in terms of lessons learned in evaluation is a spirit to be included in the study of research effectiveness.

Some research investments are easier to evaluate than others; some are decidedly quite difficult to evaluate, hence their "results," if any, are quite difficult to utilize (or it is difficult to demonstrate their utilization). There are also risky research investments that are hard to measure, but are, nevertheless, considered high in research effectiveness. Although not the same as for cost-effectiveness or organizational effectiveness, this concern for a broader sense than utilization shows that there is an ambiguity in the term "effectiveness" that is potentially useful for a new program. In this sense, it can be a strategic ambiguity; if a new program is genuinely new, it must have a new name that signals different activities and objectives, but at the same time provide sufficient room to

manoeuvre for different programs in the Centre, i.e., to allow them to see themselves in it.

Finally, consider the term innovation. The group can start with a dictionary definition, such as "the process by which an idea, practice, or object is applied for the first time by an individual or institution that is applying it, thereby leading to the introduction of a change in something established." This idea of innovation has high value in Canada. Canadians are, it is thought, impressed by "the first time" and tired of established practices. This is worthy of IDRC's attention. However, the Innovation Management and Policy Group should also address the shadows that fall across the term, both in Canada and other countries in which IDRC works. The shadows arise from well-founded apprehension that innovations affect us unequally and that, as in love, the first time is not necessarily the best time. When it presents its technical face, innovation displaces some Canadians — especially in the workplace — and this is feared and resented. Poor people around the world experience innovations in health, agriculture, industry, automation, and information processing, as displacing established practices, some of which they now accept or benefit from (and some of which, of course, they are excluded from). IDRC should study the many faces of innovation and understand the view of those for whom some innovations are a disadvantage.

IDRC has spoken for years about transferring the ownership of its research and development efforts to the people who are its intended beneficiaries, to make them a central part of the program. However, within IDRC there is the frank admission that transferring ownership is very hard indeed, particularly among people who may not own more than one cooking pot or water buffalo, or who may be selling their water buffalo or cooking pot to live. Thus, effectiveness has also come to mean the ways and means of creating a proprietary interest, where it is possible, in research and action that lead people to solve their own problems.

Particular attention was paid to the universality of the key term in the study. "Effectiveness" does not have an equivalent in French, the closest term being "efficacité." In Spanish, there is also no suitable translation.

There is a logic to changing the name of the overall program from utilization to innovation and to retaining the term "research utilization" for a subprogram, because of the time and effort spent in installing it. It has an important focus on the chain of relations that lead from the origin

of innovations through to their reception — in policy, industrial, or commercial spheres. In fact, CAID could operate programs that both retain the term utilization and add the term effectiveness under the umbrella name Innovations Management and Policy (see Chapter 6). Effectiveness pertains to the broadest context of the test of IDRC's work, as seen in the variables in the Loop; utilization is a portion of that broadest context.

3. VIEWS FROM IDRC AND IDEAS FOR DESIGN

To convey the full range of views to be found in IDRC, and to ground these views sufficiently in a sense of the Centre's culture to be persuasive, I decided to provide direct quotations from interviews, when possible, and to paraphrase when direct quotation was not possible. The views presented here are divided into four subjects: IDRC itself and the changes it is undergoing; theories and methods for research effectiveness; effective projects; and the role of an "effectiveness program."

The goal is to convey the view that everyone believes there is a need for a program on research effectiveness, that there are many opinions on what effectiveness really is, and that there is acceptance of a program that cooperates with all other elements in the Centre to help make the Centre, as a whole, effective too. Sceptical views have been included to show that people realize this will not be a simple task. All interviews took place in June, July, or August 1992 and, in this chapter, views from people in Ottawa and the regional offices are mixed together. It should be remembered that the meanings of the terms discussed in Chapter 2 were also drawn from interviews and discussions.

On Effective Projects (see also Mini-Atlas)

"We've never tried a model in IDRC of saying let's work with a community and let's provide them with research dollars for a particular sector and interrelated program, and let's provide them with the means whereby they will allocate research money, and they will provide feedback on how things are going.... If those people are making decisions about where money goes it will have some dramatic effects.... That is the real question about participation [of the community] in research: are you giving control or are you just being nice?"

"We tried not to claim undue credit for success in projects we sponsored, because it is not a cause-and-effect relation, due to the multiple origin of ideas, techniques, practices. I've always said that if there was success, it is virtue by association."

♦

"Basically, the more bureaucratic the Centre becomes, the less one can expect breakthroughs in projects and programs. I fear the loss [of the breakthrough climate] is under way. I am not quite sure what to do about it at this point."

On IDRC and Its Changes

"The minute budgets drop, you are aware of the high cost of ambiguity. Ambiguity means parallel tracks and overlapping. Then the accountants sharpen their pencils. Someone says, if there is redundancy, then get rid of it. Then you become categorical, and as soon as you become categorical you have the tensions that will affect an effectiveness program — what's your responsibility? what's my responsibility? what's your domain? what's my domain? how are you going to be scored at the end of the year? how am I going to be scored at the end of the year? That's why an effectiveness program has to be well designed."

♦

"The effect of the structural change is that almost everybody I know is in crisis... the everyday business of the Centre is suffering... my guess is it will take another year — oh, that may be a bit optimistic — for these things to sort themselves out.... Lots of terrible inefficiencies have been created by the structural changes, and they run completely counter to the idea of streamlining..."

"It is illusory to believe that changes in IDRC's performance on the ground will enhance its political survivability. The political masters who make decisions about IDRC will not review subtle arguments about effectiveness when they make decisions about its future. Only political action and communication in Canada can create a domestic constituency for IDRC's survival."

♦

"What is striking to someone from outside the Centre is how such a small place with so few staff and programs could adopt such a large part of the life of the civil service and could erect barriers and rules, which might inhibit them working together. It seems all the more necessary to me to develop inter-division working relations and interdisciplinary groups."

Theories and Methodologies for Effectiveness

"If you look at our project proposals, you will find unbelievably grandiose statements of the great benefits we will bring to this region through this project, but none of that is stuff you can ever measure."

♦

"You can say that effectiveness is better in the Centre today than it was yesterday, and better could mean two things. One is that a policy or a product gets applied by someone and something good happens. But it also could mean that it is effective today, not because we had any impact, but because we simply eliminated some of the complex variables we'd have to look at before we are effective. I mean out of 30 variables we got it down to 10."

♦

"The theories and methodologies of effectiveness are the basis for our work. They are going to provide the paradigms for the Centre. We have to affect the optique for defining the research agenda. This is probably the way to do it."

♦

"The question of research effectiveness encompasses both hard and soft sciences. A market operates in both cases. Feedback loops are necessary. These questions can be enlarged to include the effectiveness of scientific and technical institutions. One can either move from assessment of projects to institutions, or simply begin with institutions."

"Because the study of research effectiveness is really a very diffuse kind of work, you need a special kind of person to do it. They really have to be able to analyze institutions."

♦

"It is probably a mistake to think of research effectiveness as having a single focus of concern or a single locus of responsibility. Research effectiveness is achieved through a chain, a research system with accountability and responsibility throughout.... You can't impose effectiveness on a situation, you must create the internal dynamics for it."

♦

"It is necessary to distinguish between a research institute's clientele and end users. One must find out if the clientele has a relationship with end users. To find out what people have been doing, existing practices must be known and we must know if the institute's clientele is aware of these practices. We do not want to judge, but, perhaps, to reorient them and convert more people to our way of thinking..."

On the Role of a Research Effectiveness Program

"It isn't the money that's important for research effectiveness. It's the staff time and people time that count. If a good program is established, then the money will come. The trick will be to get IDRC staff directly involved, to get them to do it themselves. But there's a dilemma in that, because a lot of this has to be close to the area of evaluation, and people are nervous about evaluation. It is difficult to get them to step back and look at it as a research question. I think it is necessary to delink it and have no association with evaluation. Just call it effectiveness."

♦

"There is certainly an interest and a potential in developing countries for research effectiveness. It is not such a clear-cut constituency as agricultural research, or macroeconomics, but a growing number of research managers and policymakers are concerned with these issues."

"In the past, someone made a selection and we sometimes found out, months later, that this is one of the projects selected for utilization. That's a disaster scenario. An effectiveness group has to be involved at the beginning, and on all levels. It has to act as a kind of ginger group to keep the issue at the forefront. But it has to work in collaboration."

♦

"It should be collaborative research (on effectiveness), because it is an international question. I don't think the research effectiveness program should have too much of a formal training program, because I think it would be presumptuous to set up training courses to say 'we know how to do this.'"

4. VIEWS FROM OTHER INSTITUTIONS AND IDEAS FOR DESIGN

"Basically we're looking at two competing paradigms in research for development. One paradigm is research, extension, utilization, and adoption. It's kind of linear and stops there, following an internal logic, with 'impact.' The other paradigm starts with the development problem and traces the loops back through the economy and the people (sometimes called the beneficiaries) toward policy and research for solutions. It is about what determines the priorities for research for development. This second is far more complex a paradigm than the first and much more important. And there is almost no literature on it. Why? maybe because it is complex, and not many people are supported to work on it. This is where IDRC could make a real contribution."
[British researcher]

The Story at the Rockefeller Foundation[2]

For new programs, the Foundation thinks that the odds of achieving effectiveness are much higher when the proposal defines who the audience is and how the results will reach it. More and more often, special users' groups or constituencies are involved in the design and implementation of a project. This increases the chances of them feeling that they have some stake in the research and having a greater disposition to pay attention to the results. In some other foundations, this involvement is a precondition for grant approval. This may sound extreme, but if the grant is to fund applied research with the clear intention of affecting implementation, then the condition is warranted.

Regarding output indicators, the Foundation has found it important to avoid situations in which reductionist quantitative measures are used as the sole indicators. The Foundation established basic agreement on certain kinds of outputs and impacts, even though these may not be subject to measurement. Now they don't get a lot of questions from the Board of Directors or from staff about impact, and people understand that context, such as shifting economic and political circumstances, or other donors' activities, must be assessed. The Board has been educated to accept this kind of assessment; it may still want simple report cards, and these are necessary, but they are not sufficient in terms of assessment of impact.

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[2] This is a paraphrase and interpretation of conversations with Rockefeller Foundation officers in July 1992.

The Foundation tries to stay out of situations where utilization is in question. It should, in fact, be pretty evident. If you can't defend a research program from the beginning, you probably should not do it. Of course, every once in a while an opportunity arises, when some brilliant person wants to do something that nobody else has thought of. Usually, if the research doesn't affect the problem, then it hasn't got the Foundation where it wants to go. The way the research is constructed — the reason for doing it, who is doing it, who is articulating the issue, and for whom — should be clear. So the question of utilization should never arise.

On the international side, where the Foundation is operating at its best, it is creating a community that will go after problems on a long-term basis. The community is made up of scholars, activists, policy formulators, people who can talk to one another and get things done. The Foundation always tries to hand over research, but sometimes a community doesn't exist to receive it. So one has to put one together.[3]

Female education in Africa is an issue around which Rockefeller began creating a community. It could have avoided this, as others have done, if the Foundation had not thought that it could affect the problem. Simply creating competent researchers is not good enough; that can be achieved with fellowships and grants. The World Bank formed a "Donors to African Education Task Force" and assembled 35 ministers of education to discuss the problem. The Rockefeller Foundation raised the issue of female education. The ministers said that there is a complete lack of understanding of this issue and that donors should facilitate

[3] The Rockefeller Foundation's experience is more valuable to IDRC than perhaps any other, because it has evolved over a long time and has received much detailed analysis. See, for example, Marcos Cueto, 1990. The Rockefeller Foundation's medical policy and scientific research in Latin America. *Social Studies of Science*, 20 (3), which focuses on the difficulty of transferring organizational ideas from American research culture to Peru and Argentina between 1913 and 1940 [some of the issues are relevant in 1992]. Given IDRC's commitment to multidisciplinary approaches, see also P.G. Abir-Am, 1988. The assessment of interdisciplinary research in the 1930s: the Rockefeller Foundation and physico-chemical morphology. *Minerva*, 16 (2). Arguing that "originality always faces resistance" Abir-Am analyzes the difficulties in the Foundation's shift from patronage to policy in support of science. On Rockefeller's plan for a completely new institution for the Green Revolution in the 1950s using American ideas of agriculture, see Robert Anderson, 1990. The planning of the International Rice Research Institute. *Minerva* (Spring). (There are numerous other studies of Rockefeller Foundation policies and practice.)

African abilities to grapple with it and encourage Africans to do new work on it, and then to meet the policymaking needs of governments or the ability of NGOs to utilize the research.

Nineteen donors (not including IDRC) signed up for involvement and decided to adopt and adapt the African Economic Research Consortium (AERC) model, put it into the African Academy of Sciences with research program money, a technical committee, and a policy committee, all guided by a donor task force that divided the problem into four sections following consultation with the ministers. A special forum was created to which every female minister of education in Africa belongs, plus every deputy minister, vice-chancellor, and pro-vice-chancellor. This forum, which now has 25 members, accepted the role of think-tank and pressure group, while realizing that it has other responsibilities than just female education. Finally, a person was put in the field to create groups of parents who are trying to make decisions about their children's lives and weighing the opportunity cost of their daughters' schooling. Research and action must meet their needs. All these levels are essential.

The Foundation will never have to ask at the end if the research will be utilized, because the points of leverage have been identified, and they fit in with what is possible. One has to seed the demand as well as the supply; the Foundation creates the supply of researchers and stimulates the demand for utilization of that research by creating a community. It's a package. The Foundation puts its tools squarely in front of the community that it helps to create, and the perfect project does not need to pose questions about research utilization.

The demand side of research is very tricky and much more intriguing than the supply side. The supply side is more straightforward, involving the discovery of good talent and skills. The demand side encompasses everyone from the policymaker to the populace. The more you involve the populace, the harder it is to determine demand. It's about empowering people to reach out and grab what is available, and to manipulate it. The real empowerment doesn't come in terms of access, which is a partial term often used in agriculture with disadvantaged populations and assumes that the research and technology are good and that one wants to have access to them. The real empowerment comes from directing the research toward what one needs. This means encouraging, not demand for a thing, but intelligence to ask hard questions and to be able to coalesce, in a critical manner, around what is being produced and keep it on track by asking critical questions.

What makes this hard in the poor countries is that people can't stick to the job long enough without turnover in personnel. The work is about having incentives in the system, so that people can keep their minds on the problem and not on the politics. The female education program is a take-off from the AERC project, which IDRC nurtured and developed. The Foundation was smart. It lapped up what others were doing and put it into its offices, everywhere. The process of constructing AERC was exemplary — low profile, detailed, step-by-step, African-run. It developed an clear understanding of the politics of the work and how those politics could be put to good use. It was a careful hand-stitched project and this is what foundations are capable of. "Every time it gets away from this modality, the Rockefeller Foundation becomes a poor man's World Bank."

Comment from the Advisory Council for Scientific Research in Development Problems (RAWOO)[4]

RAWOO always looks at social relevance, that is, their understanding of effectiveness in research. Not every researcher is interested in this relevance, but RAWOO insists on it.[5] RAWOO knows that including what the users want creates a difficult methodological problem — that's the political environment and they don't necessarily understand it, partly because development research is too donor centred.

How does one influence development policy? That's tough, but it is socially relevant. Sometimes research results are hostile to policy, so relevant research, effective research, is hard to administer. For example, in Indonesia, every department or ministry has an R&D department, with bureaucrats who do not have the same interests as non-ministry researchers. Research gets accepted only if it supports their policy. They try to build communication between the two sides.

[4] This is a paraphrase and interpretation of conversations with RAWOO officials in July 1992.

[5] RAWOO, *Criteria for assessing proposals for research in and for developing countries*, 1991.

The Story at the Swedish Agency for Research Cooperation with Developing Countries (SAREC)[6]

The issue of research effectiveness is relatively new at SAREC, and the new director-general has a specific interest in the use of research results. SAREC has the same budget as IDRC, but only one-tenth the personnel and only one regional office, in Zimbabwe. With the change in government in Sweden, SAREC is under pressure to justify its existence. Because its mandate is to serve the poorest countries and populations, its area of concentration is sub-Saharan Africa. The ultimate aim of effectiveness is to shorten the time between obtaining results of research and their implementation. SAREC has much experience in monitoring and measuring results, but not much in making them effective in decision-making and policymaking spheres.[7]

Projects, which are identified by SAREC's officers, are founded on collaboration between researchers in developing countries and Sweden, with the Swedish investigators taking care of the day-to-day chores like training and ordering equipment, depending on the field. Many projects achieve good research results, but if there is no demand, they are not used. If they cannot be published internationally and, therefore, are published locally as 'second-best,' they have a low status. SAREC has spent a lot of time and money helping with the publication of scientific journals in developing countries and it helped to found the African Book Collective, a publishers' cooperative that redistributes their books and journals in Africa through the Oxford University Press.

However, SAREC now must go beyond its previous concern with publication and dissemination of results and look at effectiveness more broadly. Its first concern is actually an old one — the institutional capacity to do the work. They must be careful here, because there are cases where high capacity exists, but with no resources or infrastructure to support it. SAREC must understand and cultivate a research environment. People cannot work in empty labs, with no chalk and miserable salaries. In some cases, people keep working because they believe in what they are doing, as in Ethiopia, for example.

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[6] This is a paraphrase of conversations with SAREC officials in July 1992.

[7] See M.R. Bhagavan, 1992. *The SAREC model: institutional cooperation and the strengthening of national research capacity in developing countries*. SAREC, Stockholm, Sweden.

SAREC has to build capacity at all levels. It is going to increase support in the area of relevant information and documentation. One of the problems in Africa is that access to information about research is limited: there might be a good collection, but it stops in the 1960s, or the library is empty. SAREC thinks it is crucial that people have access to what is produced up North or in the region.

Its second broad concern with effectiveness is with something everyone learned about in Latin America, where SAREC and IDRC and others like Ford helped with a critical survival strategy for the social scientists under persecution. The objective was to keep critical thinking alive and to stop totalitarian regimes (in Chile, Argentina, and Uruguay) from undermining this pool of talent. SAREC copublished a book with IDRC on the effort, because it is so important.[8] As a result of this experience, SAREC is working with social scientists throughout Africa, seven or eight hundred of them, in and outside the universities, people who are very active in their societies in the political and social debates, who are key people in the process of democratization going on in their societies. SAREC should continue to transfer the learning from Latin America to Africa (and help Africans to do so), e.g., the debate about intellectuals and research and their contributions to society. IDRC published an interesting report by Brunner on this topic.[9] Brunner's ideas are relevant to Africa, as we are seeing education systems in Mozambique and Zimbabwe deteriorating before our eyes.

SAREC officials talked about two examples of effective research: the water buffalo project in Sri Lanka and the archives in Mozambique, both of which are discussed in *Knowledge in the Pursuit of Change* (pp. 60–62).[8] More than 10 years ago, they were involved in studies on water buffalo, which have led to boosting milk yields, improving the strain, reducing diseases — in a country where the rice economy depends on the buffalo.

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[8] IDRC and SAREC, 1991. *Knowledge in the pursuit of change: achievements in development research supported by the International Development Research Centre and the Swedish Agency for Research Cooperation with Developing Countries.*

[9] J.J. Brunner, 1991. *Investing in knowledge: strengthening the foundation for research in Latin America*. IDRC, Ottawa. "In the long run, however, it would appear that a prolonged economic crisis will, in the end, have an impact on higher education and the training of researchers, because study opportunities are fewer, research activities are cut back or reduced, professor's salaries decline and force them to take on more work commitments outside the university or leave the country, and opportunities and means to take graduate courses in the country or abroad are reduced" (p. 167).

Mozambique had a tiny archives when it became independent in 1975, but now it is a national resource with trained staff and active research into key resources (including oral history) that will allow people to understand their history. Much of it has been brought from Portugal. From this archives, important research is now possible — a situation only dreamed of before.

SAREC has defined four areas of intervention and is going to improve the utilization of results in each of them: social sciences and humanities; natural science, technology, and industry; rural development and the environment; and health sciences. SAREC is looking to research partners like IDRC and the others for joint action in these four areas. They are just beginning to study research effectiveness and are hoping to hear news from IDRC about its progress, to stimulate their own work.

"A Big Success in Effectiveness": Ford Foundation's Experience in Farming Systems Research[10]

The Ford Foundation doesn't fund as much science as IDRC, but it did participate in a big investment in increasing the relevance of research in farming systems. The farming systems approach is the best method to assess needs and interrelations in complex social situations. The theoretical basis of farming systems research is a focus on the involvement of the users, and is a paradigm for improving research relevance. It has become a discipline, or a movement, with its own journals, meetings, newsletters, publisher — so much so that some people resent its success. It is now being emulated in water management, agroforestry, health research, and preschool education.

Why was such a good idea so slow in coming? It took 20 years to get plant breeders to take the anthropologists seriously, partly due to the gender and age differences between them. It was driven by the international agricultural research centres.[11] Farming systems research is an attempt to create site-specific innovations (because innovations will

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[10] This is a paraphrase and interpretation of a conversation with a Ford Foundation official in July 1992.

[11] Although the comment on age and gender is well founded, farming systems was not originally driven by the IARCs; in the case of rice, a donor like IDRC was instrumental in forcing IRRI to reluctantly yield some space to farming systems in the mid-1970s. The IARCs certainly became protagonists for the idea about 2 years later.

not be applicable across large populations). It is now piloted by donors, who try to predict potentially successful innovations that give the greatest return under specific conditions in a given system. "You could say that the whole farming systems discipline is focused on utilization. It provides a loop back to the lab and tells the scientists what to work on."

In 1980–81, a project was initiated by IDRC to study the effectiveness of four technologies and the programs that sponsored them: oral rehydration therapy, contraceptives for family planning, handpumps for water, and new rice technologies. To be carried out in Bangladesh by a multidisciplinary team drawn from NGOs, universities in Canada and Bangladesh, and an international research centre in Dhaka, the study would involve top decision-makers in these four fields, rural government officials who administered these programs, and villagers who experienced the consequences of the technology transfers.

The study was designed to bring the lessons learned back to the policymaking circles and to the R&D institutions to influence the next generation of solutions to similar problems. The project did not become operational due to obstacles in Bangladesh, but this initiative shows that the study of the effects of technology transfer and the effectiveness of IDRC-sponsored development research was started in IDRC more than 10 years ago.

5. MINI-ATLAS OF RESEARCH EFFECTIVENESS

A list of projects that demonstrate research effectiveness was derived from the interviews; follow-up study and documentation are matched with the opinions of IDRC staff regarding these cases and the lessons they teach us. From all of these sources, I derived the idea of the Loop, which describes the paths of influence and information to and from researchers and research institutions that do (or don't) direct their attention and resources to appropriate development problems and their effective solution. Although a number of successful projects were cited (some named in the Mini-Atlas), IDRC was also seen (by those interviewed) to have supported institutions and project teams who did not solve problems, did not know whether their work was effective, and had not established a means to measure the effects of their work in the world. Because their understanding was incomplete, the reasoning went, so was their planning and action, and to some extent so was the Centre's. The Loop illustrates the paths through which feedback from the world to the research institutions that IDRC supports can be studied; the objective is to influence the climate, culture, and organization of doing research for development.

The Mini-Atlas is an incomplete list from which may be selected projects and programs to be studied as the planned research effectiveness case studies.[12] No prescribed definition of effectiveness was given to informants, so the list includes only examples using their own criteria, and the list is, therefore, heterogeneous. There was insufficient time to obtain reactions or comments on each example in the list; remarks are quoted here only to show that effectiveness is seldom an indisputable case. Results of many of these projects are described in the forthcoming 101 technologies catalogue. Programs/projects are listed alphabetically:

[12] For an earlier assessment of 35 projects in terms of an eight-point "utilization framework," which focused on the product of the research, see André Potworowski, 1989. *A utilization framework for IDRC projects*. IDRC, Ottawa.

African Economic Research Consortium
Phase II (91-0034) and INT SAREC

said one Rockefeller Foundation officer
"The ways in which IDRC, Jeff Fine, and others got the AERC going is the best example in Africa of building analytic capacity in governments and building the demand for macroeconomic research while producing the supply. The process of constructing AERC was exemplary. Why doesn't IDRC replicate this fabulous project 18 times?"

said one IDRC staff member
"The AERC is seen as a success story now, but, my god, I remember the meetings and the project review when people criticized that thing, myself included, on some issues at the beginning; others criticized it at the second phase; oh, the fighting before the third phase; and then in the end we said we've got to get rid of it. So we gave it to somebody else, and now it's a glorious success. Jeff Fine was a headache for our rules, but I've got to give him credit — he was brilliant. If they had put the Projects Committee to a vote, it would have died right there. But the President and a few others listened and listened. They carried the day. Unless they were convinced it should be vetoed, they let it go through."

AIDS Diagnosis (PATH/Global)
Phase III (91-0158); Phase II (88-0215); Phase I (87-0154)

Anticonceptive Technology (India)
Phase V (89-0041); Phase IV (85-0261); Phase III (82-0155);
Phase II (79-0150)

Alternatives to Cyanide Use in the Aquarium Industry (Philippines)
Phase I (89-1005)

Bharatiya Agro-Industries Foundation Institutional Support (India)
Phase I (87-0161)

Bilharzia (Egypt)
Phase I (87-0204)

Coastal Fog Application and Camanchaca Project (Chile)
Phase II (90-0202); Phase I (86-1026)

This project has received wide media attention since 1990, including 15 newspaper stories, 10 magazine and newsletter stories, 7 radio treatments, 6 television treatments, and continuous video showings at the Chilean and Ontario pavilions at Expo 92 in Seville.[13]

its strongest supporter in IDRC said
"Do I think the fog catchers are effective research? If I take the narrow definition, sure. It works, and it was tough to do it and to demonstrate that it works. But its not effective yet in my own definition. Its novelty as an innovation is a limitation. Now it's given free, no one pays. Even the Chilean government has not yet put money into it. So when will it be effective? It will have to be adopted and paid for by the neighbouring village. It will have to be established in other similar locations without IDRC promoting it, in other countries. Then, when it is in use spontaneously, and when village and municipal water systems see it as effective for their problems, then I think we can call it effective. Not before."

another IDRC staff member said
"It's a success story now because it provides lower cost water than before, and IDRC officials have come back ecstatic from there. But I remember when the project came through for approval. People said it is not economically feasible, it's going to cost so much. People ridiculed it. Well, it may not be glamorous to some scientists, but I can touch it, I can feel it, it worked for me."

Conservation and Development of the Mt Everest Ecosystem (Nepal)
Phase II (91-0076); Phase I (89-0077)

Environmental NGO Position Papers for UNCED (Third World Coalition)
Phase I (91-0075)

[13] I am grateful to Diane Hardy of IDRC for this information.

Environment and Development Awards (Penang Island Bioreserve)
Phase I (88-0361)

said one IDRC staff member
"The project resulted in stopping the government and a set of wealthy interest groups from razing the bioreserve to build a gold course and Japanese hotels. That's pretty effective for $25,000 — and that's because the award went to a group with a record of research and development action."

Food Enterprises and Household Grain Processing (India)
Phase III (86-0035); Phase II (80-0210); Phase I (75-0045)

The Centre's experience in the sorghum program is reported in a new book by P. Pushpamma, *Choosing sorghum as food in the semi-arid tropics: studies in the dryland communities of Andhra Pradesh, India*. IDRC, Ottawa, forthcoming. The foreword (by Richard Young) says, "I believe that the knowledge generated by this project will be invaluable to those concerned with sorghum and its use. The book should, therefore, be of interest to many researchers, policymakers, and development agents working in national, regional, and international institutions throughout the world.... [It stresses] the need to involve the target beneficiaries directly in the research process and to provide clear guidance on research design."[14]

[14] I am grateful for the opportunity to have read the manuscript of this book before publication. It contains 30 pages of interesting and closely argued text, with numerous tables and graphs, but the book does not show how the beneficiaries of the program were involved in the research process or how the state government gradually came to value (in policy terms) sorghum cultivation and marketing, or how market resistance to change was met. The book says that consumer preference was studied and reports the project's promotional activities. But it is written from inside the project, looking selectively out. We also need a book written from outside the project looking in. The book describes a 15-year process (there is no comment on the origins of the project) as a series of steady slow steps, and but fails to analyze the interesting wrong turns, mistaken assumptions, and resistance that innovative projects regularly experience, and in that sense is unhistorical. How a project addresses such obstacles interests policymakers and researchers as much as the steady steps to success. And the voices of the project's beneficiaries are silent. Every successful project has its critics: what do they say? This book is a basis for a case study of research effectiveness, but is not such a study itself. Although I hope it has an impact in the sorghum research community, it may not have much impact beyond it. This example shows why I have recommended that case-study teams be multidisciplinary and involve a researcher outside the Centre.

Indian Peasant Games and Preschool Curricula (Colombia)
Phase I (86-0146)

Most young children in the Andean region have no access to formal preschool education. However, there is a rich popular tradition of games and stories. This project produced a guide to inexpensive, innovative, and practical educational materials and games that are being used to prepare poor children for primary school. The guide can be used by parents, child-minders, and child-care workers.

Leishmaniasis Control Strategies

A long series of projects has just been evaluated by IDRC in international meetings and consultations, culminating in the publication of P. Wijeyaratne, T. Goodman, C. Espinal, 1992. *Leishmaniasis control strategies: a critical evaluation of IDRC-supported research.* IDRC, Ottawa. "The discussion was lively, often heated, and often (so it seemed at the time) unproductive. In the end, however, the group came to a common understanding of the problem of involving communities in disease control programs.... The discussion centred around two problems and their intersection: first, what is 'community participation' (since there are many potential definitions) and how can it be encouraged, sustained, and evaluated; and second, what is the importance of leishmaniasis in a given context, and what are the elements or components necessary for its prevention and control?" (p. 365).

Marketing of Information and Documentation Sciences (Morocco)
Phase I (89-0258)

Microcomputer-based System for Small Area Data Retrieval (Chile)
Phase II (87-0248); Phase I (84-0229)

MINISIS Acquisition and Training Projects (China, Cameroon, India, and regions Latin America and Francophone Africa beginning in 1978)

National Poisons Information Service (Sri Lanka)
Phase I (85-0290)

Paulownia — Dissemination of Research Results (China)
Phase III (87-0329); Phase II (86-0164); Phase I (82-0121)

said one IDRC staff member

"It is remarkable to think that the Chinese Academy of Forestry, which handles the paulownia program and is the coordinating agency for many institutions, gives substantial prizes to researchers if they win the

competition. I'm talking about a half-year's salary — the competition involves presenting and defending your research in front of about 30 people, your peers, industry, government, and the communities that are affected by your work. You must satisfy the committee. It's tough, sure, but when they hear how we decide on a grant, they think we're soft. We don't have those outside interests sitting at the table, and maybe we should."

Rural University FUNDAEC (Colombia)
Phase II (83-0093); Phase I (80-0072)

Small Grants Program (Tanzania)

Sokoine University of Agriculture
Phase IV (90-0241); Phase III (86-0251); Phase II (85-0255);
Phase I (79-0173)

Special Institutional Support for CEDES (Argentina), **CIEPLAN** (Chile)
Phase I (77-0033)

Toward the Single City, Johannesburg and Soweto (South Africa)
Phase I (90-0290)

Toward a Sustainable Development Strategy (Mexico)
Phase II (1992); Phase I (90-1012)

the proposal evaluation (1992) states

"I interpret the research project's 'decentralization' as an unfolding of its current components.... In effect, the project will become a series of individual, but integrated, research activities adopted by one or more of the agencies.... This unfolding is one of the most original aspects of the project, because while multiplying its impact and benefits, the central project team will simultaneously loosen its grip over the research process, although it will still act as a clearinghouse of information.... These efforts are central to an understanding of the past and the present livelihoods of the local populations and future environmental management in the Sierra.... This research project is likely leading up to an important new model based on its experience and on the limitations of other methodologies."

6. NEW LITERATURE IN RESEARCH EFFECTIVENESS AND INNOVATION

A review was done of the current literature and debate in the fields most related to "research effectiveness and utilization" — namely, socioeconomic studies of science and technology, business history, history of technology and culture, management of innovations, development history. The overriding reason why IDRC should concern itself with this literature and these debates is that other fields of study relevant to IDRC's work (e.g., entomology) are well advanced, whereas the effectiveness field is not. No other field of enquiry is so relevant to IDRC's future as this one. This field is the one in which the next generation of research managers and program officers will be trained, in addition to their other skills (like entomology). With foresight, IDRC can help to nurture this underdeveloped field of study, particularly in developing countries and regions, and this field of study will turn out to be one of the intellectual resources IDRC needs most in the next few years. It is also a field of learning that other Canadian institutions will need most in the next few years. Having made very effective use of the results of already-developed fields (like entomology, which had generations of support before IDRC was born), IDRC should now champion a new field close to its interests, in the sense that IDRC is advised to become a knowledge broker in the field of research for development. Effectiveness and utilization studies are the intellectual underpinnings of research for development. Being effective is the basis an action-oriented Centre.

During the 1970s, the Centre edited a journal called *Science Forum*, which began in the 1960s and was published at the University of Toronto Press. When IDRC took it over, it was published six times a year. It analyzed Canadian science and technology, as well as issues related to IDRC's work in developing countries. In the late 1970s, the publication moved to Quebec Science, but editorial control remained at IDRC until the journal was discontinued. It dealt with all the issues of relevance to the new program in IDRC, innovation, science and technology, policies in development, effectiveness, and policy research — both in Canada and in other countries. If it had not been abandoned, it would have been useful to Canada and the rest of the world.

The journals assessed in terms of current debates on research effectiveness and innovation are: *Technology in Society*; *Technology & Culture*; *Human Organization*; *Impact of Science on Society*; *International Journal of Technology Management*; *Organization Studies*; *Research Policy*; *Public Administration & Development*; *Journal of Public Policy*; *Science, Technology & Development*; *Administrative Science Quarterly*; *Social Studies of Science*; *Science, Technology & Human Values*; *Science in Context*; *Scientometrics*; and *Minerva*.

Journals dealing with international development issues in general were not reviewed.

Also relevant, but not reviewed, are the journals *Knowledge: Creation, Diffusion, Utilization*; *Prometheus*; *Futures*; *Technology Analysis & Strategic Management*; *IEEE Transactions on Engineering Management*; *Journal of Systems Management*; *Journal of Management Studies*; *Science and Public Policy*; and *Human Relations*.

New Literature on Research Effectiveness

No literature that can be called studies on "research effectiveness in development research," indicates how receptive the situation will be when IDRC becomes active in this field. However, there are some recent close parallels, offered here as illustrations of what is being done by others. A special issue of the *Journal of Public Policy* (Cambridge University Press) on "Lesson-Drawing Across Nations" (January-March 1991, 11(1)) includes an article by C.J. Bennett of the University of Victoria, "How States Utilize Foreign Evidence" (pp. 31–54), which is of direct relevance to IDRC's interest in policy-oriented research. Attention is paid to science in poor countries: Y.A. Shenhav, D.H. Kamens, 1991. "The Costs of Institutional Isomorphism: Science in non-Western Countries," *Social Studies of Science*, 21(3) (Sage Publications) distinguishes between efficiency and effectiveness, trying to build a theory of effectiveness for scientific development in which legitimacy, absorption potential, and readiness for investment are all seen to demonstrate a national maturity that does not have the same political importance as mere efficiency. Nevertheless, most poor countries lack the capacity to make use of their own scientific resources.

A study of effectiveness of networks within organizational culture undergoing change and conflict (and relevant to IDRC's situation) is J.R. Harrison and Glenn R. Carroll, 1991. "Keeping the Faith: A Model of

Cultural Transmission in Formal Organizations," *Administrative Science Quarterly*, December, pp. 552–582. Work pertaining to the research context is Diana Hicks, 1992. "Instrumentation, Interdisciplinary Knowledge, and Research Performance in Spin Glass and Superfluid Helium Three," *Science, Technology, and Human Values*, 17(2), in which she compares strategies of groups for success in condensed matter physics. She explains different definitions of success and assesses the effects of the freedom to plan ahead, the rewards from publication, and the effect of the presence of dilettantes. This work is directly relevant to IDRC's understanding of the institutions that it supports.

On a higher level of generalization, there is William K. Cummings, 1990. "The Culture of Effective Science: Japan and the United States," *Minerva*, 18(4), which shows that it is possible to make a system-wide assessment of effectiveness using a 40-year time frame. The assessment raises questions (about public understanding and/or acceptance of science and technology) that can easily be transferred to regions in which IDRC is interested.

Finally, outside the research context, an example of a study of the effectiveness of long-term environmental planning and cooperative action is T.R. Dunlap, 1991. "Organization and Wildlife Preservation: The Case of the Whooping Crane in North America," *Social Studies of Science*, 21(2). It evaluates the success of activity in Canada and the USA over 50 years, involving experts who gradually took over the program from amateurs. The two groups retained their mutual need, so the focus moved from bird-law to habitat-preservation to environmental policy. Most of the issues and analysis in Dunlap's work are relevant to effectiveness studies in relation to Agenda 21.

New Literature on Innovations

With a much longer history of interest, information about innovations is voluminous. Only a few recent items are mentioned here to illustrate what is being done and what IDRC can build upon. It is heartening that researchers moved beyond the "gee whiz" view of innovation to examine why some likely candidate-innovations do not succeed, and this is good news for IDRC.[15]

A recent symposium on "Failed Innovations" in *Social Studies of Science* (1992, 22(2)) provides detailed historical studies of quite different types and scales of technical innovation and explains why each failed: namely the atmospheric railway, two-stroke internal combustion engine, electric ploughs, television, the airmail pick-up system, nitrogen fixation, gas turbine engines, industrialized house building, the plastic bicycle, and the paraglider. "Failure" itself is defined very carefully and precisely in this symposium. Pam Scott, 1991. "Levers and Counterweights: a Laboratory that Failed to Raise the World," *Social Studies of Science*, 21(1), analyzes the rise and fall of a maximum security laboratory established to work on exotic animal disease viruses in Australia (built in 1981, opened 1985, closed 1987). Scott assesses the role of protagonists and antagonists and their relative success and failure. This study could be beneficial to the planners of ILRAD in Kenya.

Another assessment of a technical innovation that appeared to suit a need perfectly is made by A.R. Saetnan, 1991. "Rigid Politics and Technological Flexibility: The Anatomy of a Failed Hospital Innovation," *Science, Technology, and Human Values*, 16(4). On the PREOP innovation in Norwegian hospitals, Saetnam writes, "It failed to become what was expected of it," offering the two common explanations in the hospitals for the resistance and analyzing the conflict in networks that PREOP ignited. I think that good effectiveness research that studies failures *and* successes would be of greater policy and planning relevance than that which focuses solely on success.

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[15] Although I found publications in which IDRC's own sense of success is described, I did not find published studies in which IDRC's experience with failed innovation is analyzed. IDRC is not insensitive to the issue. For example, there is Akin O. Adubifa, *Technology Policy Failures in Nigeria* (MR-186e, April 1988), which analyzes failures in cement, vehicle assembly, petrochemical, and iron and steel, and compares Nigeria's experience with Brazil's. But IDRC does not have major on-going involvement in these industries and they are not really Centre projects, so the implications for the Centre were minimal.

A special journal issue of interest to IDRC is the *International Journal of Technology Management* (1992, 7(1,2,3)) on "Strengthening Corporate and National Competitiveness Through Technology." Published in Switzerland and edited in the UK, with an international board of advisors, it has no representation from developing countries or from Canada. It is, however, the kind of symposium in which IDRC's research should be presented. Also, in *Science, Technology, and Development* (published by Frank Cass, London) there is a good special issue on "Science, Technology, and Development — North-South Cooperation" (1991, 9(1,2)) including papers on research effectiveness, issues in health, agriculture, water management, etc., authored mainly by people in the South and Europe. But there is no reference to IDRC.

Innovation receives close attention from *Research Policy* (Elsevier, Amsterdam) in M. Callon and colleagues' study of the (French) Agency for Energy Management and the diffusion of innovations through "chained networks" (June 1992) and in R. Dalpe, C. DeBresson, and Hu Xiaoping, (all of UQAM in Montreal), "The Public Sector as First User of Innovations," which studies US and Japanese auto industries for their structures, strategies, and performance.

IDRC's main focus in the first 15 years or so was on the public sector in developing countries. There will be an important role for the public sector in the future too, argues J.W. Schot, "Constructive Technology Assessment and Technological Dynamics: The Case of Clean Technologies," *Science, Technology, and Human Values* (Winter 1992). Schot assesses the Dutch experience with "alternative variations" in the technology "selection environment" and this is relevant to IDRC in its work on Agenda 21.

Also relevant to Agenda 21 is research on NGOs, an incipient field because NGOs are themselves a recent innovation in development research. In *Human Organization*, B.P. Thomas-Slayter, "Implementing Effective Local Management of Natural Resources: New Roles for NGOs in Africa" (Summer 1992, 51(2): 136–143) focuses on Zimbabwe and Kenya. Also E.A. Narayana, "Bureaucratization of NGOs: Analysis of Employee's Perceptions and Attitudes," *Public Administration and Development* (May 1992) points to inevitable issues that arise when more and more is expected of NGOs by larger and richer organizations.

On a higher level of abstraction, but useful for IDRC's new subprogram in scientific and technical change, *Technology in Society* (Pergamon Press)

recently (1990) published a special international dialogue on the problems of research in science, technology, and society. And *Science, Technology, and Human Values* published a special issue on "Theories of Technological Change" (Winter 1992).

What is Research Effectiveness?

A researcher is supported to discover and develop a formula for a food for infants, using locally available plant material. The formula is found and the baby food is developed. Then a small company begins to manufacture and sell this product, at a reasonable price.

But is it effective? What happened to the babies and their mothers? What happened to the company? What happened to the food and its price? What happened to the plants from which it is derived? What happened to the researcher and the institute where the initial work was done? What happened to the formula?

Effectiveness research answers these questions.

7. MODEL FOR A NEW PROGRAM: INNOVATION MANAGEMENT AND POLICY

A model for the organization of a new program is proposed to allow debate and to permit selection of the most positive features of the proposed changes. The idea that provides the umbrella and holds the subprograms together is innovation.[16] In 1991, the Research Utilization Program had six subprograms and was very comprehensive. The new model for an innovation program combines and reduces these six subprograms to three that are more strongly complementary:

1. Enhancing capacity for research effectiveness,

2. Utilization of research for sustainable development, and

3. Management of scientific and technical change.

To some extent, subprograms 2 and 3 have histories in the Centre and are ready to be broadened and deepened; their new appearance is based on advice gathered in this study. It is proposed to create a more focused and economical program that addresses three aspects of the general phenomenon of innovation, a process that is at the heart of IDRC's objectives. Innovation, its management, and the policies that induce it underlie each of the three subprograms. At the same time, the program offers a way to address what is perhaps IDRC's most pressing problem: how to know which programs are effective, and why and how to build that knowledge into the everyday practices of the Centre.

[16] The Office of the President of IDRC has identified the International Institute for Innovation at the Banff Centre for Management as a partner in building the Centre's links with new networks around the concept of innovation. The new program on innovation in IDRC provides one ideal focus for this partnership.

Subprogram 1: Enhancing Capacity for Research Effectiveness

This subprogram addresses three main problems: there is little systematic understanding of the effectiveness of development research as an aspect of innovation; the capacity to understand and adopt/adapt/incorporate the lessons of research effectiveness and innovation is limited and undeveloped; and communication about research effectiveness and innovation management in development research is needed, but undeveloped. Activities will be geared to strengthening capabilities through "learning by doing." Three components of the work are planned:

1a. Studies in Research Effectiveness

Starting with in-house case studies and leading to a more general approach through other cases, this component should build the evidence, theories, and methodologies for the field of research effectiveness studies for IDRC and other similar institutions interested in development research. Its purpose is to:

- study the development research process itself, both within IDRC and more widely;
- learn how to realize the full capacity of potential users to seek, interpret, assess, and adopt/adapt new knowledge, ideas, techniques, and practices in different development contexts;
- enhance the retrieval, availability, and utilization of indigenous knowledge and skills in development research and the innovation process;
- identify factors in the inception, organization, and conduct of development research that promote effective participation in terms of gender, class, ethnicity, language, and social status;
- study and improve the capacity for foresight by mapping out the directions and likely consequences of possible socioeconomic, scientific, and technical change and then nurturing or breeding the change that is most desired;
- study and understand risk perception, risk analysis, and risk communication as they pertain to development research and innovation;[17]

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[17] Canadians are leaders in the study of risk perception, risk analysis, and risk communication, and through numerous public enquiries have come to realize that values are deeply at work in scientific and technical change: see Conrad G. Brunk, Lawrence Haworth, and Brenda Lee, 1991. *Value assumptions in risk assessment: a case study of the Alachlor controversy*, Wilfred Laurier Press, Waterloo, in which it was found that all stages of assessment of Alachlor's risks were shot through with normative ▸

- apply the tests of environmental and socioeconomic sustainability in the case of development research after the longest possible elapsed time, assuming that a number of the effectiveness case studies will involve projects "closed" 10 years ago. Even in more recent cases, the tests could reasonably be applied.

1b. Capacity Building for Research Effectiveness

Starting inside IDRC, this component should enhance the capacity to apply the lessons from component 1a at all regional offices and in Ottawa, then move outward, among Canadian partners and IDRC-supported institutions outside Canada. Through human resource development assistance, it will enable them to undertake similar studies, adapt the paradigms, theories, and methodologies to suit their needs, continuously build the usefulness of the field of research effectiveness studies, and apply its lessons to their own contexts. The elements of this component are:

- consensus-building activity around the research effectiveness issue, with Canadians and with people in other countries, and transfer of the lessons in research effectiveness, particularly to the policy process;
- through human resource development, help IDRC and other institutions to realize the full capacity among potential users to seek, interpret, assess, and adopt/adapt new knowledge and ideas, and to do so with reference to indigenous knowledge, techniques, and practices in different development contexts;
- provide customized action-oriented support to enable users to capture the innovations that are significant to them and to encourage them to assess critically the consequences of adoption/adaptation of new knowledge or techniques through foresight.

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assumptions, and further, that many of these assumptions were unavoidable. Risk assessors were divided by the fact that they held differing values, not simply by differences concerning the purely empirical aspects of the risk assessment itself. Risk analysis, then, is as much a normative as it is a scientific enterprise. Because IDRC is deeply involved in the promotion of innovation, it is already experiencing the need to study expert disagreement and the role of values in technical change.

1c. Communication for Innovation and Effectiveness

Starting with IDRC and moving outward among Canadian partners and publics and among like-minded institutions/individuals everywhere, this component should find and use messages and media that deepen and extend understanding of both research effectiveness and innovation, and that loop back to influence the creative, productive, and innovative sources in societies everywhere. Its elements are to:

- assess messages and media presently used to communicate innovation and research utilization and identify the effective factors from both the publics' and professionals' points of view, with particular attention to gender, age, ethnicity, and language;[18]
- adopt multi-media strategies to communicate the effectiveness of development research, and do so critically, relying on IDRC's unique independent status; deploy new media and messages to address risk perception and risk communication, particularly where development conflict is found and where communication could be of creative use in its resolution;
- show how effectiveness of development research done by IDRC and others should be understood as a communication loop, linking together (as partners) policy circles, productive sectors, research communities, NGOs, and the social system in a community with a mutual interest in solutions to specific development problems. Use IDRC skills and resources to keep this communication loop vital and adaptive.

Subprogram 2: Utilization of Research for Sustainable Development

Most S&T support provided to developing countries concentrates on enhancement of local capacity to generate science and technology. Our focus on demand for innovation and utilization is relatively novel in international development work. This subprogram aims to support work on the arrangements, institutions, support services, incentives, skills, and information that users or potential users need to adopt innovations, working primarily with intermediary institutions (such as trade associations, technology extension organizations, etc.) and user organizations, whether in the productive or social sectors. The subprogram will focus on ways to increase the capacity of users to

[18] A new book, partially supported by IDRC, focuses on gender and development, participatory research, and research networks: Pilar Riano (ed), *Women and Grassroots Communication*. Sage Publications, New York (forthcoming).

capture and integrate social innovations or new technical practices that promote sustainable development and Agenda 21. The subprogram has three sets of activities: dissemination mechanisms of producers, S&T capturability enhancement, and commercialization and market development.

2a. Dissemination Mechanisms of Producers

This component will support work that enhances the capacity of S&T institutions to diffuse and disseminate research results and other S&T outputs. The particular focus will be on ways of strengthening the outreach capability of research and development institutions with special attention to networks, both institutional and interpersonal, communication strategies, institutional arrangements, management practices, and incentives to establish environmentally sustainable production systems.

2b. Capturability Enhancement for Intermediaries and Users

Intermediary institutions, such as technology support centres or regional technology transfer organizations, are key actors in effective innovation systems. By providing linkages between sources of S&T and users, intermediary institutions play important roles in enhancing the "capturability" of S&T for beneficiaries. This subprogram component will support research and development activities that strengthen the ability of users or potential users to seek, interpret, adapt, and assess new knowledge, ideas, and practices in different contexts.

2c. Commercialization and Market Development

Given the mission and mandate of IDRC, only a portion of the Centre's research results will have commercial potential. However, some IDRC-supported research has already led to the development of products and processes with potential for commercial application. If assessment of the commercial potential is promising, assistance can be made available for initiatives to take the product or service to market. This component of the subprogram will aim to increase the commercial returns on past IDRC investments in research and on increasing the probability that present and future IDRC research investments provide appropriate financial returns. This component will also support initiatives to increase the capacity of developing countries to develop markets and commercialize innovations in market situations, including the so-called "green markets" that are emerging.

Subprogram 3: Management of Scientific and Technical Change

This subprogram is aimed at enhancing the capacity of institutions to guide, target, and apply S&T in pursuit of sustainable socioeconomic development. It addresses three kinds of management problems: problems that policymakers must confront in the design, implementation, and assessment of public policies for innovation in the productive and social sectors; challenges that R&D-institutions must address to achieve effectiveness in their operations; and difficulties associated with acceptance and absorption of research results within the productive and social sectors. The following sets of activities address these problems.

3a. Policy Processes in Change and Innovation

The elaboration, implementation, and assessment of policies for innovation are difficult tasks in any country. Developing countries need greater support to acquire knowledge and mastery of the public policy processes and instruments that can be used to guide innovation and manage scientific and technical change. Likely collaborators and beneficiaries of this activity are governments, policy research institutes, and organized economic or social interests. These activities focus particulary on the historical failures of policy researchers to achieve utilization of their results through new policies.

3b. Management of Research and Development Institutions

This set of activities will provide support to projects and activities involving decision-makers and managers in (or responsible for) R&D institutions. It will focus on the human and institutional factors that contribute to enhanced capacity and performance of R&D organizations in developing countries. It will include research on R&D management, coupled with training and development initiatives to improve management practices in R&D units in the private and public sector.

3c. Transfer, Utilization, and Management of Technology

These activities will concentrate on increasing the realm of useful knowledge about the skills, tools, institutional arrangements, and procedures that organizations in the productive sector can adopt to make more effective use of S&T, ranging from firms or groups of firms to households that are seeking to use S&T to enhance economic performance and adopt technology that meets acceptable environmental standards.

Ways and Means to Build a New Innovation Management and Policy Program

1. Find the natural affinities between existing staff members and the new subprograms.
2. Define, with staff members, realistic goals to be reached in 12 and 24 months for each individual and for the working groups at regional offices and Ottawa.
3. Having appraised the staff's capacity to achieve these goals, make such permanent and temporary appointments (including internships, etc.) as are possible within present limits.
4. Identify and contract, through collaborating mechanisms, people in the Centre and Canadian partners who can assist the group to achieve these goals, including collaboration with IDRC presidential advisors.
5. Apply some of the ways and means for research effectiveness outlined in Chapter 9 to the group as a whole, while recognizing the Centre's need for results from the research effectiveness subprogram and the critical advantage of moving quickly in this area. In brief, adopt and adapt the spirit of Chapter 9 to the Innovation Management and Policy program as a whole.

8. THE DESIGN OF THE RESEARCH EFFECTIVENESS PROGRAM

The plan for subprogram 1 — enhancing capacity for research effectiveness — is the main outcome of this study, which explains why a complete chapter is dedicated to this issue. Because it is entirely new to the Centre, I believe these details are warranted. In the case of subprograms 2 and 3, the need for detail is reduced because they have a history in the Centre.

Project Support for Subprogram 1

1a. Studies in Research Effectiveness (start in year 1)

Projects to support this component will:

- Plan and execute major research effectiveness (RE) study in each region and/or the methodology and framework for such studies. Each project is regional, but is to be linked to a similar project in other regions. Involve a Canadian partner, encouraging joint definition of goals.
- Manage one small-grant competition in each region to be focused on RE, with a selection of the best results in each region to receive further development in the second year and for presentation in Canada and possible publication. Involve a Canadian partner in this activity.
- Effect "studies" transfers between regional offices, and with Ottawa, to ensure consensus-building for RE within IDRC.
- Make an inventory, building on existing inventories (if any), of Canadian capabilities in RE and what these capabilities can contribute to the process in the first year.
- Help to manage workshops and conference sessions that present work in progress and findings of the studies, and bring the studies to publication (or other media).

1b. Capacity Building for Research Effectiveness

Projects to support this component will:

- Ensure the transfer between IDRC, like-minded institutions, and IDRC-supported institutions of the framework and methodology of the studies and their findings (in all forms).
- Build the capacity to "learn by doing," in IDRC-supported institutions and individuals.
- Assess the needs and audiences in IDRC, in like-minded organizations, in IDRC-supported institutions, and among Canadian

partners, and ensure that they are addressed.

- Link Canadian capacities for study in RE with those outside Canada, ensuring a gradually-achieved balance between Canadian and non-Canadian participants in the RE process.

1c. Communication for Innovation and Effectiveness

Projects to support this component will:

- Identify the effective factors (from the point of view of the public and professionals) in both messages and media in communicating innovation, including the testing of these factors with audiences, especially in non-contrived settings.
- Study multi-media strategies to communicate the effectiveness of IDRC's work, and how risk is best addressed where development conflict is found.
- Show how effectiveness of development research done by IDRC should be understood as a communication loop, and/or other graphic form that conveys the idea of the critical effectiveness of development research.

A Working Definition

Having contemplated the variety of meanings attached to "research effectiveness" within and outside the Centre, I offer the following working definition:

> Research effectiveness is the property of development research that closes the loop from the perceived and real consequences of research and development among the populations affected by it back to the people who define problems and plan their solutions through new policies and new research.

It thus includes, but is not limited to, the study of the cost-effectiveness of such efforts; study of the process, effects, and impacts of technology-transfer, technique-transfer, and knowledge-transfer; study of the interplay between policymakers, policy-oriented researchers, and the political publics most affected by specific developments and changes; and study of the process of utilization of research and development in the productive sectors of the economy.

To characterize the study of research effectiveness, it is useful to consider a long loop that forms the connection between separate domains like the productive sectors, policy circles, segmented

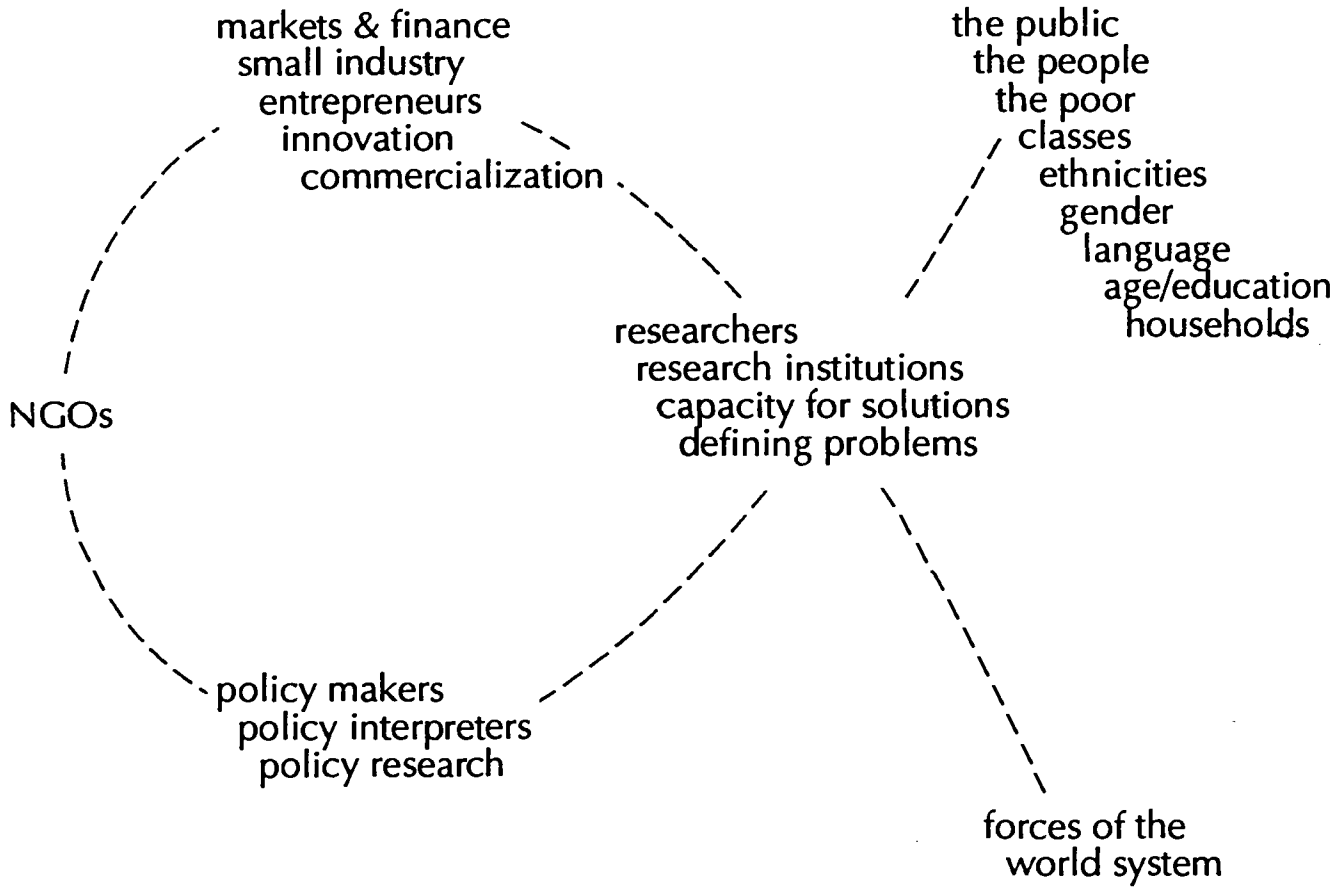
populations, and the institutions and individuals who do development research. Studying research effectiveness means studying the flow of information and influence in the paths traced by the loop (see diagram opposite). It incorporates the study of the conduct of research itself, the organizational life of research communities and institutions, the participation (or lack of it) in the planning of research by affected constituencies, the risks perceived and experienced by affected constituencies, the sites and times where policy is fashioned and decisions are taken, and the effects on specific problems of macroeconomic and geopolitical forces beyond the influence of research and development and beyond the reach of the Centre. Something valuable is already known about each of these fields. The time has come to make this knowledge coherent, to close the loop, and to provide for the Centre a testable model of how to proceed — not simply to make its own programs smarter, but to assist others in doing the same. It will allow the Centre to exercise foresight and enable it to bring into being the future it desires.[19]

A Service Program?

In thinking about a model for the new program, it is essential to point out that the work of this new group cannot be thought of as a service to other divisions. This group and its program efforts must create and communicate a way of doing things that attracts and affects other divisions; that way of doing things is essentially collaboration. In IDRC, as in every other large Canadian institution and organization (corporation, ministry, agency, university, hospital, etc.), there is a tension surrounding "service" — a unit defined as serving others is disqualified from major decisions — and the term is resisted. Work on effectiveness, which is inherently complex and multidimensional, cannot really be done well as a service to others (like polishing their texts). Archaeologists

[19] Foresight research is well established in different countries. See Ben R. Martin and John Irvine, 1989. *Research Foresight — Priority Setting in Science*, Pinter Publishers, London, UK, "whereas predictive forecasting implies a rather passive attitude towards the future, foresight and la prospective involve a much more active stance — reflecting a belief that the future is there to be created through the actions we choose to take today" (p. 5). See also, Ben R. Martin, 1992. *Research Foresight and the Exploitation of the Science Base — A Scoping Study*, a report submitted to the Office of Science and Technology, Cabinet Office, United Kingdom. This commissioned report critically reviews the traditions of research foresight in the UK, USA, Germany, Netherlands, New Zealand, and Australia. The absence in Canada of a foresight process excluded Canada.

THE EFFECTIVENESS LOOP



Effectiveness... "closes the loop from the perceived and real consequences of development research among the populations affected by it, back to the people who define problems and plan their solutions through new research and new policies."

move in to brush the dust off other people's debris and interpret it as a service, but in this case the people are working among the debris, working with it; so effectiveness studies need the active collaboration and interpretation of the people themselves, the people who constructed the programs being studied. Other divisions will be among the main beneficiaries of this program, because they will use its results to smarten up their work. It is in their interests to see it not as a service done for them, but as a joint program in which they can be proactive, whose approaches they can adopt and adapt to their purposes, and whose work supports theirs.

Can Everybody Do Effectiveness Research?

Yes and no. Yes, everybody in IDRC concerned with development research can learn the results of effectiveness research and apply them in their working groups, and everybody can join the debate about what works and what doesn't. The process of learning and applying is like research. But no, not everyone is suited to carrying out studies of research effectiveness, because they are time-consuming, detailed work involving a historical and ethnographic approach, considerable detective work, and some frustration over missing evidence. Effectiveness research must be done in an independent frame of mind, which is why small study teams are proposed. It cannot be done quickly, nor to specific deadlines, and not everyone has the patience for it. For these reasons and others, IDRC should not force-fit people into this program, but proceed by selection through natural affinities. All the evidence shows that there are people in every office and division who are eager to work on their version of this subject. The new program can bring these energies together.

9. WAYS AND MEANS TO INSTALL A NEW RESEARCH EFFECTIVENESS PROGRAM

Relying on various sources, including the interviews, I propose the following list of administrative ways and means to "be creative with limited resources," that is, to establish the new program with a minimum of fuss and an optimum use of the skills of the personnel available for the task. The task is literally to infect the operation of the whole of IDRC with the spirit of research effectiveness, with the idea of the loop, and with the will to trace the flow of influence and information among and between the different domains. In doing so, there will be two results: an effective Centre that knows the consequences of its projects and programs and adapts or modifies appropriately; and knowledge of the intellectual and practical capacity to help develop research effectiveness elsewhere. The main objective of the new program is to strike a balance among building the strengths of a program group in CAID, linking members of this group with activities in other divisions and regional offices, drawing other Canadians into the process, and building on strengths of people already known to IDRC (and like-minded institutions) in the regions and problems of concentration. Not in order of importance and as an open-ended list, the following 18 possibilities are noted, in terms of their relevance to the division and to the Centre as a whole.

The New Program in the Corporate Affairs and Initiatives Division

1. Develop a generic framework and methodological approach for the continuing study of effectiveness, based on careful follow-up studies of past projects (perhaps selected from the Mini-Atlas in this report). This approach should include the ideas of people (in the Centre and outside) who are cooperating in subprograms 2 and 3. Selection of examples for the case studies should include some projects long-finished and some only recently finished, thereby testing the question of how long it takes to tell if research is effective. Each case study team should include a member of the Innovations Group, someone from another division most concerned with the selected project, and at least one outsider with skills in this field. Although outsiders may be essential in this work, they are not sufficient — no matter how skilled they are — because, in this instance, the Centre's staff must accumulate the learning process directly and apply the lessons learned personally. The generic framework and methodology should emerge naturally from the case studies and should not be seen to precede them.

2. Form links as a group with people developing selected projects for the pipelines, perhaps one in each division and/or each regional office, to adopt a cooperative approach to the effectiveness question. By linking as a group, the absence of one member (from the innovation group) will not limit the power of collaboration with others. By concentrating on a few projects, the group can avoid being spread too thin and can, if lucky, find among this handful of new projects two or three that will "turn to gold" by demonstrating that effectiveness questions can be empirically and intellectually demanding (and respectable), and that these questions can derive valuable answers for IDRC as a whole.

3. Include a person trained in anthropology in the group to balance the capabilities of the other specialists. Studies in RE require an ethnographic/anthropologic approach, so someone with experience in institutional studies is valuable.

4. Make an inventory of Canadians and Canadian institutions (including other government agencies like CIDA) who have done or are doing work in effectiveness and utilization of research and development. Make contact with them, beginning with workshops, a twice-yearly short news report, or teleconferencing or on-line e-mail conferencing. Centres for the study of scientific and technological issues and policies can assist with these activities. Some of these people have done work in the field of effectiveness, but on Canadian topics; now they could be asked to turn their attention, in collaboration with IDRC-supported researchers, to topics of interest to the Centre.

5. Bring interns into the program, for 6–12 months on a rotating basis, to study effectiveness in a selected IDRC program or project, or to assist with development of the framework and methodology, perhaps in the context of the activities described in 1 and 2 above. The application process for the internship could be linked with the inventory described in 3.

6. Establish a monthly forum at IDRC, involving people from other divisions and people outside IDRC, to discuss and explore the dimensions of RE and utilization. This forum could generate new opportunities for collaboration and cooperation. A summary of the discussions should be on record and available for further use.

7. Include in the innovation group's "performance review criteria" the provision of an incentive/reward for publishing one paper a year in the field of RE in a journal, perhaps in collaboration with someone from another division or regional office, or with an intern or a researcher outside the Centre. An important group of collaborators are those who established effective projects, but are no longer with IDRC. Journal publication is one way to retrieve their precious knowledge for the Centre and store it for posterity, particularly for people wanting to study this subject as part of their training. Because the best time-frame for a critical effectiveness study of any project of program is probably at least 10 years after it is deemed "finished" (in the case of utilization studies, it is probably at least 5 years), some of the people who know most about the inception stage of such projects/programs are no longer in the Centre. The purpose here is to take advantage of the power of collaboration and to begin the process of nurturing the field through which the next generations will be trained over the next 5–10 years. On the whole, most IDRC staff have gone through the same training and apprenticeship process, studying a similar kind of literature and pursuing a similar kind of debate; in 20 years of IDRC's history, there has been an enormous (unrealized) potential and many (unrecorded/unnoticed) contributions in this field by Centre staff. Now it appears that the external demand and necessity for such contributions has reached a critical level: hence the need to bring the literature into a more coherent form and call it a field.

The New Program in IDRC as a Whole

8. Create a five-person advisory committee to offer advice to the RE subprogram, including two members from other divisions, two from outside the Centre (one could be a member of IDRC's Board of Governors), and one from the division itself. This committee could assist with selection of interns, comment on selection of projects to be included as RE case studies, interpret the work of the program to others, and provide evidence that old projects (and new ones) are being selected for effectiveness studies only after consultation, due care, and reflection.

9. Provide time each year for reflection and recollection in tranquillity, for working apart from daily pressures and permitting a growing understanding in individuals, and their working groups and networks of the utilization and effectiveness of their work. Provide a means to record and communicate that growing understanding. This is the

key meaning of "the culture of IDRC must continue to be that of an organization for learning" (*Empowerment Through Knowledge*, 1991, p. 19). One use of this reflection time could be to work in collaboration with the Innovations Group on studies of effectiveness. There would be time to write (or communicate in other ways) about effectiveness. Is 2 weeks of such working reflection feasible?

10. Encourage and reward people in the regional offices for exchanging their views on effectiveness, both with their counterparts in other regions and with staff in Ottawa. Contributions to a theory and methodology of effectiveness research should be actively sought throughout IDRC, perhaps eventually through an open e-mail conference, but at first in direct one-to-one communication, guided by the Innovations Group.

11. Really use the special leave mechanisms of the Centre and review them in terms of the part they can play in making IDRC an organization for learning about effectiveness. The Centre's current *Management Policy Manual* describes staff development leave, self-funded leave, in-house research, special assignments, and secondments. Whether self-financed or partly Centre-financed, these types of leave (if tied to the study of effectiveness) are a marvellous means to renew the human and intellectual capital of the Centre at very little cost. People could be seconded to other like-minded institutions to learn their approach to effectiveness. In this context, initiate a review of the Centre's personnel arrangements to see what other mechanisms are available, including performance review, to provide incentives for focusing on the issue of effectiveness.

12. Make "effectiveness monitoring" one of the criteria to be used to decide on the 25% of the Centre's budget for new initiatives. New projects/programs should have effectiveness questions built into their design, and lessons could be learned from monitoring these projects as they evolve.

The New Program Outside the Centre

13. Use the annual meetings of learned societies to stage a session on effectiveness, co-chaired by someone from the Centre and someone outside it. Present one or two studies of effectiveness for critique. A number of learned societies are prepared to discuss effectiveness in research, e.g., Canadian Society for International Development. The learned societies represent only one appropriate venue where

national impact can be had at low cost. The Royal Society of Canada could be persuaded to discuss the subject, giving it a certain prestige, but sessions could also be organized at industrial, medical, environmental, and social policy gatherings. In this way, all of IDRC's resources go into the study, effective presentation, and critique of work in this field.

14. Create one or two annual dissertation research and completion grants focused on an effectiveness study of interest to the IDRC program. Incorporate the results into the group's activities. The application process alone would reveal how many (or few) people are studying the subject at an advanced level, in Canada and in the regions. By this same process, IDRC can influence the number of people preparing themselves for (and supervising) this kind of work.

15. Establish a small-grants program with a research effectiveness focus at one institution in each region, guided by the regional office, but open to people all over the region. This program could be conducted in cooperation with the Evaluation Unit of CAID, which has been interested in small grants in the past. If awarded on a competitive basis, one could choose the best results annually, and IDRC could fund that person to participate in the Canadian meetings on effectiveness as described in 10 above. This would produce about five first-class studies in effectiveness emerging from the regional offices each year; combined with what IDRC produces in activity 1, the results will be substantial.

16. Organize the publication of collections of effectiveness studies in special issues of relevant journals (such as *The Canadian Journal of Development Studies*), and have members of the IDRC group edit or co-edit these special issues as frequently as feasible. If that journal is presently deemed uninteresting, it is because Canadians do not pay it enough attention. (See the above list of journals for literature assessment; see examples of situations in which IDRC should have been involved.)

    Special issues of journals have been produced at IDRC in the past, and a journal called *Science Forum* was published at IDRC during the 1970s, but there has not been much coherent contribution in the field of effectiveness and not (to my knowledge) building on a critical analysis of IDRC's experience. This special issue method is more rapid than books, has a ready audience, is peer reviewed, is

less expensive than a journal, allows IDRC to prepurchase copies for distribution, and allows for a spectrum of approaches and perspectives that can be included in the special issue as debate. Work by interns, scholarship winners, small-grant awardees, etc., could be featured along with writing by IDRC personnel. This does not preclude IDRC publishing its own critical and popular work; a recent IDRC book (also supported by the Rockefeller Foundation) on technology and development in Africa was a great success.[20]

17. Cultivate relations with print and broadcast journalists who want to understand effectiveness in its deepest sense — one could start with all the previous Media Fellows of the Asia-Pacific Foundation, in addition to the people currently in contact with the Public Affairs Unit. The aim would be to walk them through the effectiveness case studies, take them to one of the locations, and let them ask questions, showing them what is meant "by going beyond cost-effectiveness to research effectiveness."

18. Avoid saying that the new program will provide training in enhancing effectiveness. Actively develop the field by collaborating with others. IDRC can avoid the obvious comment that neither IDRC nor Canadians know enough about effectiveness, utilization, or innovation to presume to train others. By holding workshops, by collaboration, through publication, by exchange, the function of training can be served without drawing too much attention to it: better to talk about joint learning.

Innes on Utilization and Application

Speaking about Harold Innes, Donald Creighton wrote, "His leadership was a direct, almost unqualified expression of his own character and personality.... He taught [his students] to beware of 'monopolies' and 'oligopolies' of truth, of closed systems of knowledge, of the limitations of 'present-mindedness' and parochial nationalism, of false appeals to utility and immediate application, and of the perils of specialization and quantitative measurement" (Donald Creighton, 1957. *Harold Adams Innes — Portrait of a Scholar*. University of Toronto Press, Toronto. pp. 129–130.

[20] Patricia Stamp, 1990. *Technology, Gender, and Power in Africa* (2nd ed.). IDRC, Ottawa. Chapter 9.

10. RECOMMENDATIONS

1. Adopt the whole Innovation Management and Policy program, and phase in each subprogram in a sequence, with due reference to the affinities and capabilities of existing and future members of the group and the manner in which the outputs of the various activities will converge upon and reinforce one another.

2. Establish "Enhancing Capacity for Research Effectiveness" as a subprogram of the new innovations program, and decide on who its guides and protagonists will be.

3. Appoint an Advisory Committee for the research effectiveness case studies and have its members — in consultation with others in the Centre — select about six candidate case studies for first attention. Two members of this committee should be from outside the Centre; one could be a member of the IDRC Board of Governors.

4. Consider the appointment of someone trained in anthropology to the program. This person should have experience with institutional studies.

5. Choose study teams and organize them around the case study that interests and attracts them most. Let them develop a timetable and a budget. In the end, three or four studies might proceed, in tandem, until the value of their activity can be assessed. Plan to review progress in six months and a year.

6. Complete an inventory of Canadian people and institutions who have interests surrounding the effectiveness question and begin to communicate with them about the program to build public awareness of this work.

7. Open the application process for the intern position(s) in research effectiveness.

8. Begin the monthly forum on research effectiveness and establish an open forum on e-mail with people in the regional offices to build a climate of interest in the results of the effectiveness case studies and to exchange ideas about a generic framework and methodology. Conserve all these ideas in an accessible form.

9. Review the performance review criteria within the group/division to find ways to reward both individuals and groups for research and publication in the effectiveness field.

10. Explore the possibility of special in-house leave (on a Centre-wide competitive basis) for 2 weeks to complete a study of an aspect of effectiveness in an individual's work.

11. Review all leave mechanisms in terms of their utility for building a learning culture and an interest in effectiveness research in IDRC.

12. Add effectiveness monitoring to the criteria for deciding on the 25% of the Centre's budget for new initiatives. New projects/programs should have effectiveness questions built into their design. Lessons can be learned from monitoring these new projects as they evolve.

13. Plan a session on research effectiveness at the 1993 learned society meetings — even if results from the case studies are not available by then, there can be discussion of work in progress. Interns, doctoral fellows, and program officers from the regions should be present if possible. Study other ready-made, inexpensive venues, including meetings among like-minded organizations, such as the one on this topic planned by RAWOO in Amsterdam in January 1993.

14. Institute a dissertation completion grant in the field of research effectiveness. The awardee might work as an apprentice with one of the case study teams.

15. Establish a small-grants program in research effectiveness, one through each regional office, but perhaps managed by a regional research institution. Select the best results for inclusion in the annual discussions in Canada, as well as regionally.

16. Initiate discussions with editors/publishers of relevant journals to identify those who would like to have a special issue on research effectiveness edited or electronically prepared at (or in coordination with) IDRC. Establish a sequence of such journals, so there is a timetable of publication. Ensure that the special issues are available in the regions. Publish case studies in relevant regional journals.

17. Establish communication with interested journalists to see how their timetables (including leaves) fit with the effectiveness case studies and how they might best learn from them.

APPENDIX A: Duration of Employment at IDRC of People Consulted

Person	Years	Person	Years	Person	Years	Person	Years
A	0	F	8	K	12	P	16
B	1	G	9	L	13	Q	17
C	3	H	10	M	13	R	19
D	4	I	10	N	14	S	20
E	6	J	11	O	15	T	21

Median = 10.5 years
Mean = 11.2 years

APPENDIX B: People Consulted During This Study

At IDRC

Raymond Audet	Fernando Chapparro	Fawzy Kishk	Chris Smart
Daniel Adzei Bekoe	Salama Fahmy	Maureen Law	Terry Smutylo
Keith Bezanson	Gilles Forget	Paul McConnell	Joachim Voss
Gerry Bourrier	Jingjai Hanchanlash	Jim Mullin	Anne Whyte
David Brooks	John Hardie	Pierre Sane	Richard Young

In the United Kingdom

Stephen Biggs, University of East Anglia
Norman Clark, University of Sussex
Geoff Oldham, University of Sussex

In the Netherlands

Gustaff W. von Liebenstein, Centre for International Research and Advisory Networks, RAWOO
D.B.W.M. van Dusseldorp, Chairman, RAWOO
M.S.S. El-Namaki, Director, RVB Netherlands International Institute Management
Howard Elliot, DDG, International Service for National Agricultural Research (ISNAR)
Douglas Horton, Senior Research Officer, ISNAR
Phillip Pardy, ISNAR
Barry Nestle, ISNAR
Samual M. Wangue, Research Fellow, UNU Institute for New Technology (UNU/INTECH)
Maria-Inês Bastos, Research Fellow, UNU/INTECH
Niels Rolling, University of Wageningen
Jacqueline Broerse, Free University of Amsterdam
Theo van de Sande, Research Assistant, Free University of Amsterdam
Luc Soete , Director, MERIT
Rohini Acharya, Researcher, MERIT

In Norway

Tertit von Hanno Aasland, Royal Ministry of Foreign Affairs

At the Rockefeller Foundation

Jane Hughes, Associate Director, Population Sciences
Joyce Moock, Vice President

At the Swedish Agency for Research Cooperation with Developing Countries

Ann Stodeberg, Director of Social Sciences
Karin von Schelbrugge, Information Officer

At the Ford Foundation

John Gerhart, Director, the Africa Program

At the International Institue for Innovation, Banff

Don Phillips

APPENDIX C: Interview Questions for IDRC Staff Re Research Effectiveness

1. Can we reflect on the strengths and weaknesses of IDRC's efforts in RE so far?

2. What do you think of the term "effectiveness"? What does it communicate? How do others in the Centre view it?

3. Can you describe a project/program just ending where RE is visible? Why do you think effectiveness has emerged in this case? What are its origins? its causes? its costs? its supports? How were its clients needs assessed? How were they involved in the project design and implementation?

4. Can you identify a project/program now beginning in which there is a probability of increased RE? For this case, who are the main clients in the field? main audiences? is there South-South cooperation? is there inter-Divisional cooperation? Canadian partnership? Where is the 'real demand' for the research coming from?

5. Using these two examples, can we speak of a model for RE which could be installed in the Centre? Do you think there is a commitment to RE in the Centre? What is your view of how it should be implemented?

6. What are the obstacles to RE in your field? your Division? between Divisions? Can you give an example of unsuccessful efforts to achieve RE?

7. What potential do you see now for Divisional and Regional linkages around RE? What must be done to achieve these linkages? Is there a possibility of harmonics, and if so, where? Can a tradition of foresight be created in the inter-divisional and inter-regional context?

8. What tools are necessary for this foresight? Could "foresight research" play a functional role in the linkages within IDRC, and/or in the projects/programs in the field?

9. What is most difficult administratively about an RE initiative? What could be done to overcome such difficulties?

10. Are you prepared to commit program dollars or staff-time to address RE within your division/program? Would you co-finance such activities with others in the Centre?

11. Are you able to recommend an institution (and/or specific individuals) to whom we should look for ways of increasing effectiveness of research?

Issues for Discussion Re Research Effectiveness

(these issues should emerge naturally in the Interviews)

Demand for RE by sector, by country. How much is research driven by donors? researchers? policy-interests? publics/audiences? How does this vary by sector? by development problem? by country?

Experience with RE by Division, by Regional office — successful and unsuccessful.

Inter-Divisional, inter-Regional relations on RE (as distinct from existing evaluation and utilization programs).

Administration of an RE initiative, application of existing Centre personnel/etc practices "without cost" to RE, use of obligatory IDRC documents (e.g., PIM) and their databases as RE tools.

Search for new administrative and funding techniques for RE, including "low-cost" administrative changes, including how to fund RE.

Relations between RE and Canadian partners; their contribution to RE, cooperation with other private/public Canadian institutions interested in research.

Semantics of "research effectiveness" in English, French, Spanish, etc., in terms of communicability of term, comparison with other terms.

Considerations of RE by policy, social, and management studies, capacity to draw on the strengths of such studies.

The International Development Research Centre is a public corporation created by the Parliament of Canada in 1970 to support technical and policy research designed to adapt science and technology to the needs of developing countries. The Centre's five program sectors are Environment and Natural Resources, Social Sciences, Health Sciences, Information Sciences and Systems, and Corporate Affairs and Initiatives. The Centre's funds are provided by the Parliament of Canada; IDRC's policies, however, are set by an international Board of Governors. The Centre's headquarters are in Ottawa, Canada. Regional offices are located in Africa, Asia, Latin America, and the Middle East.

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